

INFO WORLD

The Voice of Enterprise Computing

PRODUCT REVIEW

Oracle serves up Web apps

By Maggie Biggs
ORACLE'S NEWLY released Web Application Server 3.0 offers a powerful solution for those seeking to deliver mission-critical applications to browser-based end-users. The product combines flexible development options and strong database support (for both Oracle and third-party products), in addition to simplified transaction management and enterprise-type scalability and availability. The Windows NT version of

Web Application Server that I evaluated contained the same enterprise features already found

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Key features of Web Application Server 3.0

- Offers transaction management
- Works with existing Web servers
- Integrates with Oracle and non-Oracle data sources



Power tips panned

■ Intel guidelines seen as unrealistic

By Ephraim Schwartz
EPRHAIM SCHWARTZ BALKED at a set of recommendations unveiled by Intel at its Mobile Power Management Initiative (MPMI) in San Francisco last week.

MPMI is a grand plan designed to deliver mobile devices that can match desktop performance without overheating or completely draining their batteries. Buried at the back of Intel's Application Software Guidelines are recommendations to users that would hobble many of the management features of Windows 95.

Several recommendations are included.

- Turn off the autosave feature in your applications or reduce frequency of saves.
- Perform backups and disk defragmentation manually. The Windows Plus Pack monitors your system for backups and automatic disk defragmentation, which requires software to be running all the time. This unnecessarily consumes power and accesses the disk.
- If an application is reformatting text, checking spelling, checking grammar, or recalculating spreadsheets in the background, the application is unnecessarily keeping the CPU busy. Invoke those features

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Solaris shines: Sunsoft's update is a robust and scalable intranet platform. 129



Career choices: If an MBA program is in your future, here's how to choose the right school. 119

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Java: Fork in the road ahead

Microsoft hits brakes

Java accelerates

By Dana Gardner

MICROSOFT'S GAME PLAN for derailing the Java bandwagon will become apparent when the company outlines its approach to Web-application development this week at its Professional Developer's Conference in San Diego.

While damming Java with faint praise as a "great language," Microsoft is rolling out Java alternatives for

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► **For news on Symantec and Java,** see page 6.

By Niall McKay and Maggie Biggs

JAVA IS CLOSING the performance gap on more mature languages such as Visual C++, according to recent tests carried out by an independent software vendor and verified by the InfoWorld Test Center.

JavaSoft, for example, plans to address challenges caused by poor garbage collection in Java with tech-

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Windows development

Microsoft to sketch out tools strategy

By Bob Trott, Ed Scannell, and Ted Smalley Bowen

ALTHOUGH Microsoft will highlight its plans for Windows NT 5.0 and enhancements to the next release of its Component Object Model (COM) at its developer's conference this week, attendees will also get a taste of the company's new tools offerings.

At its Professional Developer's Conference in San Diego, Microsoft vice president of tools Paul Gross will outline how the company's Visual Studio 97 tools suite will exploit technologies that Microsoft has deemed strategic—namely Dynamic HTML (DHTML), HTML 4.0, and its enhanced object model, called COM+, sources said. COM+ is a set of class libraries designed to extend existing COM and Distributed COM (DCOM) capabilities.

In the coming weeks, the company also plans to announce upgrades to the suite, starting with beta versions of its Visual InterDev and Visual J++ Java-development

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TEST CENTER COMPARISON

Save money and improve security by replacing your leased lines with a virtual private network

VPN spells relief

IT'S RARE THAT each solution in a Comparison is better than what it's built to replace, especially when a new technology is involved. But all four of the virtual private networks (VPNs) we built are so much less expensive than traditional leased lines, without compromising security

► **RESULTS AT A GLANCE** page 81

► For a review of **Isolation Systems' InfoCrypt Enterprise VPN**, go to <http://www.infoworld.com>.

Solaris 2.6 for Intranets

Price

- File and print services for multipatform clients
- Browser-based configuration

Cons

- Problematic installation
- Incomplete browser-based tools

TEST INFO WORLD CENTER



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NetWorld+Interop

Management vendors target Java systems

By Emily Fitzloff

SOURCES CLOSE TO Tivoli Systems say the company will announce the ability to manage Java-based systems from its Tivoli Management Environment (TME) at next month's NetWorld+Interop show in Atlanta. That capability is expected to be similar to those announced last week by Tivoli's archival, Computer Associates (CA).

CA's announcement consisted of detailed plans to integrate Java systems-management capabilities into its Unicenter TNG enterprise management product, and the launch of a Java-based Web-browser interface.

The sources said Tivoli will reveal a similar Java road map at next month's show, but this was strenuously denied by a Tivoli representative who claimed that Tivoli already offers all the functionality in CA's announcement. However, this was disputed by several analysts.

In fact, analysts commented that management of Java systems is one area in which CA appears to have a strong lead over its rival.

Steve Foote, vice president of research strategies at the Hurwitz

Group, in Boston, said, "Tivoli... is behind the curve and no one offers all the functionality that CA does."

Peter Kastner, group vice president at the Aberdeen Group, in Boston, agreed CA is "definitely the first," and said that such capabilities will be "a no-brainer, must-have."

Tivoli has already revealed some Java plans: it will implement a Java Web interface to all of its TME products by mid-1998, according to executives, but it currently only offers this on its NetView network monitoring device, which is only for OS/390 environments.

While administrators can monitor network events from the Web interface, the ability to make changes will not come until the next release, which should arrive by next month, according to sources.

CA is offering browser-based network, system, database, and application management including monitoring, administration, and control. Because its Web interface runs only on browsers supporting the Java Development Kit 1.1, its availability date depends on when browser vendors support this.

Yogesh Gupta, CA's senior vice president of product strategy, said that for some platforms the interface will be available in a few weeks, and for others it will be later in the year. He added that CA has implemented all the security mechanisms of its existing applications into the Java Web interface.

The Web interface and Java systems-management technology will be sold as Unicenter TNG add-ons.

What differentiates CA's solution, according to Rich Prah, an analyst at D.H. Brown, in Port Chester, N.Y., is that "no one else is able to control all managed devices" from a browser interface.

CA is likely ahead of the curve, because most vendors are waiting for the Java Management API (JMAP) to be completed before finalizing Java-based management solutions, analysts said. However, Foote said he doubted CA will hurt itself by not waiting for JMAP.

Computer Associates International Inc., in Islandia, N.Y., is at <http://www.cai.com>. Tivoli Systems Inc., in Austin, Texas, is at <http://www.tivoli.com/>.

FROM THE NEWS DESK • MICHAEL VIZARD

It pays to knock Java if you need the eggs

Once you've waded through all the technical details and the sordid marketing hype, you'll find that the war between Microsoft and Sun over Java is actually a battle for the hearts and minds of developers. Right now, the various Windows

platforms collectively account for more than 80 percent of the market. That means there are lots of developers and systems integrators beholden to Microsoft and its products for their livelihood. And to be honest, most of these people are perfectly happy with the leadership they get from Redmond because it affords them a quite comfortable living.

In fact, for most of these developers, "cross-platform" simply means porting applications from Windows

3.1 to Windows NT. As a result, it's no surprise that many of them take their cue from Microsoft when it comes to choosing the platform they write to.

As noted in Dana Gardner's Page One article this week, Microsoft seems to be saying that Java's only real value is as a complex programming language that can serve as an alternative to C++. From Redmond's point of view, there is no need for the large body of

developers to bother with Java applets on the Web, and Java is certainly no replacement for the Windows platform.

To be fair, Microsoft's statements that Dynamic HTML is easier to work with than Java for certain Web applications and that Extensible Markup Language (XML) is a richer file format standard are basically true. But neither of these technologies negates the value of Java. In fact, the potential power of a JavaBeans/XML combination probably exceeds that of Dynamic HTML and XML.

But for guards Microsoft, which guards Windows APIs as though they were a nest of golden eggs, relinquishing control of the developer community is like giving up the hen that laid those eggs.

So is Java part of an evil plot launched by Sun to eat away at the foundation of the Redmond empire? Or is Microsoft just using a few belittling statements from Sun's Scott McNealy as an excuse to stamp out the word "Java" from our everyday speech? Write to me at michael_vizard@infoworld.com.



COMPAQ PLANS EARLY LAUNCH FOR NETPC

Compaq will announce its NetPC, the DeskPro 4000N, this week in hopes of staving off waning support for the specification. Also, next week the PC giant will announce deep price cuts on its DeskPro products when it introduces its fall refresh of the line.

COMPAQ AND INTEL JOIN FORCES

Compaq and Intel announced last week that they will pool their efforts in the networking arena. Their alliance will include technology licensing and product development and span network interface cards (NICs), switches, hubs, remote-access servers, and digital-subscriber-line products. The companies expect to announce products based on the alliance in the fourth quarter. Meanwhile, Compaq is also near agreement with Intel rival 3Com on a deal to include 3Com NICs in configured-to-order PCs from Compaq.

IBM PLANS FASTER, COOLER ASICs

IBM Microelectronics later this year will introduce a generation of fast, low-power application-specific ASIC products, including PowerPC variants, based on a 0.20-micron production process announced this week. The semiconductor manufacturing process, called CMOS 75, will let the company shrink circuitry to smaller dimensions than ever and fit more computer logic onto a single chip, yielding products that are smaller, integrate more complex functions, use less power, and require less cooling.

FIRST NON-WINDOWS DCOM SHIPS

Software AG is shipping DCOM for Unix on Sun Solaris, the first commercial version of Microsoft's Distributed Component Object Model (DCOM) on a platform other than Windows. The shipment marks the long-awaited first step toward opening Microsoft's proprietary distributed object model. Software AG has been tapped by Microsoft to port DCOM to Unix platforms, as well as minicomputer and mainframe operating systems. DCOM for Digital Unix is slated for release next month, with other platforms to follow.

NEW OAK PLANS VPN SWITCH

Start-up New Oak Communications will announce this week and demonstrate at NetWorld+Interop what it calls an "extranet-access switch," a \$50,000 box that combines routing, authentication, tunneling, and encryption services. New Oak's NC 4000, due in December, is aimed at IT managers who want to reduce costs by giving remote users and business partners secure access to their corporate networks via virtual private networks (VPNs) over the Internet as opposed to using expensive phone lines and remote-access servers. The product also aims to collapse the functions of typically incompatible products, such as firewalls and routers, that are needed to build a VPN. The NC 4000, which supports as many as 2,000 simultaneous users, supports protocols including Point-to-Point Protocol, Level 2 Forwarding, IP Security Architecture, and Layer 2 Tunneling Protocol for tunneling; Lightweight Directory Access Protocol; Remote Authentication Dial-In User Service; NT domains, and X.509 certificates for authentication; and DES, TripleDES, and RSA for security.

► For the latest IS news and updates, turn to InfoWorld Electric at <http://www.infoworld.com>.



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THE INFOWORLD SCOOP

- For a brief summary of the latest news, reviews, interviews, features, and forums, subscribe to our weekly newsletter, The InfoWorld Scoop, at <http://www.infoworld.com/launch/register.htm>.



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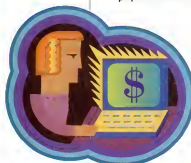
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This One



BXHO-5XD-7BU3



IBM set to boost RISC, PC server presence

■ Company offers more 'mature' line

By Ed Scamell

IBM THIS FALL is preparing to unveil RISC servers with 64-bit hardware and software and to revamp its PC-based server line.

The new RS/6000 Enterprise Server Model S70, set for release next month and code-named Raven, will feature AIX 4.3, a 64-bit implementation of IBM's Unix operating system that will run both 32-bit and full 64-bit applications, said sources close to the company.

"This will be good for IS shops with pockets of users in their enterprise that could take advantage of 64-bit technology for production," said one analyst briefed by IBM.

Bringing its RS/6000 line up to 64-bit hardware and software will help IBM fend off competition from Hewlett-Packard, which last week released a 64-bit version of its Unix OS, called HP-UX 11.0. It will also give customers room to grow.

"IBM has to mature [its] products...to speak, giving its RISC-based environment some breathing room," said Joe Loiseleur, senior researcher at International Data Corp., in Framingham, Mass.

IBM will also announce a C compiler for developing applications for the new 64-bit platform, sources said. The tool is expected to have source and binary compatibility with other versions of C for AIX.

The base server, Model S70, will have at least eight processors but can run as many as 12.

It will be aimed at customers running data-warehousing and data-

Blue is in: IBM's fall server line

High end

- Hardware: RS/6000 Enterprise Server Model S70
- Software: AIX 4.3, a 64-bit implementation of its Unix OS
- Direct competitor: Hewlett-Packard's PA-RISC servers with HP-UX 11.0, also 64-bit Unix

Low end

- Hardware: Four-way Pentium Pro-based Netfinity 7000 servers
- Software: Windows NT
- Direct competitor: Compaq's ProLiant 7000, also runs as many as four Pentium Pros

mining applications, and those running data-intensive Web-based applications. For the latter application, IBM will also offer WebSM, a Web-based management tool.

"This should attract some users interested in Web serving," one analyst said. "Web-based [management] tools are pretty scarce right now on Unix platforms."

At the lower end, IBM this week will announce a line of Pentium-based servers with better systems-management software and a new brand name. The servers will compete with Compaq's ProLiant 7000 server higher-end PC server arena. IBM officials declined to comment.

IBM, in Armonk, N.Y., can be reached at (800) 426-3333.

— Additional reporting by David Pendery

IT applications

Users roll eyes over delay of Windows 98

By Bob Trott

THE WINDOWS community was not particularly surprised that the delivery date for Windows 98 has been pushed back again, this time so Microsoft can integrate Windows 3.1 migration functionality into the release.

And although the news gave Microsoft's stock a momentary jolt, many users greeted it with a collective shrug.

"Most big customers are going directly to [Windows] NT," said Pekka Jarvinen, technology director at ICL Data Oy, an Internet consultancy in Helsinki, Finland. "Our customers are not at all worried about Windows 98."

The release of Windows 98 has slipped from the first quarter of

1998 to the second, meaning it likely won't see the light of day until mid-year. Microsoft had already announced plans to ship some for the 3.1-to-98 upgrade three months after the launch of Windows 98.

Widespread unhappiness on the part of the user community and business partners has forced the company to rethink its plans.

"It was primarily a packaging decision," said Jeff Raikes, group vice president of sales and marketing at Microsoft, last week.

For enterprise customers whose sights are set on NT and are either upgrading to NT 5.0 now or waiting for NT 5.0, due next year, Windows 98 is not important.

"We've got no interest in Windows 98 because we're moving

from 3.1 to NT 4.0," said Susan Alexander, IT manager at a Menlo Park, Calif., nonprofit organization. "All our applications will run on NT Workstation or can easily be switched to it."

Hardware vendors should use the additional time wisely because many new Windows features will hinge on technology that isn't yet cooked, one analyst said.

"The best features and reasons for an upgrade are hardware reasons—exploiting USB [Universal Serial Bus], digital TV, and so forth—and the hardware base is not there," said Dwight Davis, editorial director at the *Windows Watcher* newsletter, in Redmond, Wash.

Microsoft Corp., in Redmond, is at <http://www.microsoft.com>.

Intel pursues faster and cheaper processors

By Andy Santoni and Dana Gardner

INTEL'S PROCESSOR PLANS over the next two years are to continue the company's relentless pursuit of higher-performance and lower-cost mobile, desktop, and server PCs.

The road map already calls for the next version of the Pentium II, code-named Deschutes, to show up in notebooks, one- and two-way desktops, and servers with as many as four processors by the middle of next year. A year later, these PCs will begin the customary drop in price as Intel introduces an enhanced version of the Pentium II, being developed under the name Katmai, according to Tim Bajarin, president

of computing consultancy Creative Strategies, in San Jose, Calif.

By offering lower power consumption than today's CPUs, built with 0.35-micron technology, the Tillamook Pentium MMX chip introduced earlier this month and the upcoming Deschutes and Katmai Pentium II processors will give laptops the power to render the most demanding multimedia and 3-D applications, Bajarin said.

The Katmai CPU will appear in the first half of 1999, according to sources close to Intel. The chip will feature additions to the MMX

multimedia instruction set extensions that target 3-D applications.

With Deschutes, the 0.25-micron process technology version of the Pentium II, expected to offer clock speeds of 400 MHz or even 450 MHz by the end of 1998, Katmai chips will have to check in at 450 MHz or better, said Nathan Brookwood, principal analyst at Dataquest, in San Jose.

Unlike earlier processors, which had clock speeds that were multiples of the 66-MHz system bus, Katmai will offer speeds that are multiples of the 100-MHz bus that will be standard by the time the chip appears, Brookwood noted.

Following Katmai at the end of 1999 is another x86-compatible chip, code-named Willamette, Brookwood said, which will take Intel names its projects after rivers. Intel will follow Willamette with Merced, the 64-bit Intel Architecture and PA-RISC-compatible CPU being developed by Intel with Hewlett-Packard.

In line with the company's usual practice, Intel will introduce these processors at high prices, pushing down the price of existing CPUs until they reach about \$100, when they become obsolete, Brookwood said. Although PC performance continues to improve, average system prices do not change, he noted. "They stay exactly the same," Brookwood said.

Intel Corp., in Santa Clara, Calif., can be reached at (800) 628-8686.

Symantec heats up Java app battle with beta of JIT 3.0

By Niall McKay

SYMANTEC NEXT MONTH will release the beta version of its Just In Time (JIT) 3.0 compiler for Java, according to company sources.

Version 3.0 will enable developers to compile Java code 20 percent faster than Version 2.0, according to sources.

The new Symantec JIT will feed the battle for the fastest Java applications-development environment, which is set to heat up in the next few months as vendors start to release faster versions of their tools.

"What you will see happening with Java is just what happened with the microprocessor industry

in the past," said Jim Mitchell, JavaSoft vice president of architecture and technology, in Mountain View, Calif. "Every body will be competing to offer the fastest solution. That is the beauty of competition."

Symantec, Microsoft, and JavaSoft are all due to release the new version of their JIT compilation technology imminently.

JIT technology is used in conjunction with JavaSoft's Java Development Kit application-development environment to speed up the process of writing code.

"Our goal is to get the speed of the JIT as close as possible to that of C++," said Allen Bannon, director

of development for Symantec. "We plan to release a new JIT every six to nine months and to increase the speed by 50 percent with each release."

JavaSoft will release its competing HotSpot dynamic compiler technology to beta testing before the end of this year.

"With HotSpot technology, Java will offer developers speeds approaching that of C++ and C," Mitchell said.

Symantec will be shipping Version 3.0 of its JIT with JavaSoft's Java Performance Pack, with NetScape Navigator, and with its own Visual Café development tool.

Some users believe that the emphasis on speed is misplaced.

"Speed is not our biggest concern at the moment," said Rajesh Lalwani, president of Intiva, a Cupertino, Calif., Web-based task-automation company. "We are far more concerned with other aspects such as Java's inability to provide text wrapping."

Meanwhile, Mitchell said he believed that when JavaSoft's HotSpot technology arrived, Symantec would have to make its own build-vs.-buy decision.

Symantec Corp., based in Cupertino, can be reached at (800) 441-7234.

Database technologies

Upgrades on tap at Oracle Open World

By Martin LaMonica
and Paul Krill

HAVING FINALLY PUSHED the latest release of its namesake database out the door, Oracle at its annual users' group meeting this week will turn its attention to some secondary products.

The company will try to revitalize its lagging messaging and groupware product line with the unveiling of InterOffice 4.1, which features a built-in workflow engine and Java client. The upgrade, set for release next month, will include HatTrick, a word processing and graphics application written in Java and the ConText text database option.

Analysts said that Oracle is clearly late to the messaging game, but its database-driven design — where messages are created and managed in the Oracle relational engine — could resonate well with users.

"Messages aren't just internal anymore... storing and managing them is a document management problem. Oracle's architecture makes a lot of sense because you can build workflow around messages," said Peter Boyle, an analyst at Kinetic Information, in Waltham, Mass.



PERSONAL ORACLE LITE 3.0 works in concert with client applications and business logic written in Java.

Delivered as cartridges for the Oracle database, InterOffice 4.1 costs \$55 per user, and ConText costs \$395 per concurrent session.

Also, Oracle will roll out the Java-friendly Version 3.0 of its Personal Oracle Lite mobile database. Version 3.0 features bidirectional replication with Oracle8, and Web- and mail-based replication. It includes full row-level locking concurrency, enabling multiple applications to access the database safely. Priced at \$195, the upgrade is due in December on Windows and Power Macintoshes.

Also to be highlighted at the show is Oracle Fast Safe, which adds

high availability to Oracle databases running on Windows NT and works with Microsoft's Cluster Server two-node software. The product allows an Oracle database to fail-over.

Fast Safe will ship next month free to NT-based Oracle database users on maintenance contracts and will be included in new database shipments. It will be available initially

for Oracle7, with Oracle8 support planned for December.

Oracle will also announce a joint development agreement with Network Appliance to enable Oracle database files to be stored in Network Appliance's file servers, or "filers." The capability, allows the database files to be moved off of the main application server and stored on the NetApp filer, thereby boosting performance, officials said.

Also, Oracle this week will detail new database management tools, expected to ship in 1998, according to a source.

Also, Oracle Corp., in Redwood Shores, Calif., is at (650) 506-7000.

PC standards created

■ Intel coordinates compatibility efforts

By Dan Brody

THE WIRED FOR Management (WFM) initiative — which is aimed at standardizing the management features included on PCs — will gain momentum this week when PC vendors meet at Intel's facility in Oregon to test the management capabilities and interoperability of their systems.

Intel is sponsoring the event to ensure that vendors' hardware and software systems comply with the baseline WFM specifications. The company estimates that fully compliant systems will hit the market by the end of this year. Among the vendors invited are Hewlett Packard, Tivoli, Computer Associates, and Microsoft.

"This is happening," said Will Swogge, vice president of desktop marketing at Intel. "WFM will be as standard as the jack you plug your monitor in to. Everyone will have it."

Intel executives have not ruled out the possibility of branding PCs with WFM compliance stickers.

Compliance with WFM means that PCs would contain standard asset management information using the Desktop Management Interface 2.0 specification, network administration, off-hours management, and a pre-boot execution en-

vironment, which would enable a system to automatically download software and OSes from a server.

If all PC vendors eventually embrace the initiative — which Intel officials are confident will happen — an IT manager would be able to manage PCs from any vendor with a variety of popular systems management applications.

For example, an IS manager could manage an HP Vectra using Compaq's Insight manager, or manage a Compaq DeskPro using HP's OpenView, which could happen right now, according to Intel.

"I think this is great," said an IT manager at a Fortune 500 company. "We've been trying to standardize our PCs for manageability by buying them all from the same vendor, but with WFM we wouldn't have to do that."

Although there are no PCs that meet baseline specifications for WFM yet, vendors have systems in varying degrees of development, from prototypes to production units.

"We expect that people will start to ask for WFM soon," said Steve Tokola, director of management architecture at Intel.

Intel Corp., in Santa Clara, Calif., is at <http://www.intel.com>.

Server vendors packaging for the Internet

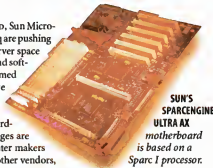
By David Pendery

HEWLETT-PACKARD, Sun Microsystems, and Compaq are pushing hard into the Web server space with new hardware and software combinations aimed at providing more complete and easy-to-use Web servers.

Unified Internet hardware/software packages are improving as computer makers use the expertise of other vendors, analysts said.

"The number of companies presenting flimflam packages is pretty small now," said Harry Fenik, vice president of Zona Research, in Redwood City, Calif. "If there is a good product [available], based on standards, to develop new technology is not worth it."

HP's Web campaign features four new models in its Domain line of RISC- and Intel-based servers. With prices starting at \$10,500, users can choose a PA-RISC-based HP-UX server or Pentium-based Windows NT model. The high-end \$140,000 Domain XE Intelligent Web Server comes only with HP-UX. All are available now.



SUN'S SPARCENGINE ULTRA AX motherboard is based on a Sparc I processor.

Customers can equip the HP Domain servers with various software bundles. For example, the high-end Domain XE Intelligent Web Server includes a collection of Informix software such as its object-relational database, WebObjectBlade, and Universal Web Connect to link database content to a Web server, officials said.

At least one user is going with HP's Domain servers because of the company's OS flexibility.

"We will move into this product to seamlessly integrate the two operating systems," said Lance Roncalli, vice president of business development at Spree.com, an

Internet clearinghouse.

HP rival Sun Microsystems will widen its Web approach by farming out its Sparcengine Ultra AX motherboard and Solaris OS, with three electronic publishing and communications units, to OEMs.

The OEMs, including MicroAge, Nevcor Technologies, PC Wholesale, and Western Micro Technology, will use these guts in lower-end, "PC class" servers.

Compaq has modified its own server offerings, transforming its ProLiant 850R 6/200H and 2500 servers into more focused Web publishing machines.

These ProLiant are available with Windows NT 4.0. Priced beginning at \$8,000, the rack-mounted unit is powered by one or two 200-MHz Pentium II processors.

Hewlett Packard Co., in Palo Alto, Calif., is at <http://www.hp.com>. Sun Microsystems Inc., in Mountain View, Calif., is at <http://www.sun.com>. Compaq Computer Corp., in Houston, is at <http://www.compaq.com>.

Paul Krill contributed to this article.

IBM expands application clusters

By Emily Fitzloff

IBM CURRENTLY IS finalizing the third component of its DSseries application clustering services to ensure high availability and scalability of cross-platform applications. IBM announced its DSseries Internet infrastructure solution, which consists of directory, security, and availability services, in July.

While several vendors are racing to get their clustering technologies to market, IBM is the first to detail plans for cross-platform application clustering.

Application clustering is meant to give applications the same level of resilience as other network elements.

According to Phyllis Byrne, vice president of IBM's distributed systems software group, "Applications like Notes and DB2 would be enhanced to pick up where hardware and OS high availability leaves off."

Byrne added that application clustering will make "applications smart enough to bring the user back to where they left off in the

event of a failure."

Rick Mayo, IBM directory business manager, said that the technology will complement the company's platform clustering for hardware fail-over.

Mayo said that the technologies will consist of "a cross-platform clustering toolkit for high availability of applications, based on IBM's Phoenix technology."

One analyst said he believed that IBM may be ahead of the market. Nick Gall, an analyst at the Meta Group, in Waltham, Mass., said he was unsure if the market actually needs application clustering yet.

"If and when Java everywhere occurs, then platform-independent clustering will be useful," Gall said.

DSseries directory and security services are expected to ship later this year. Its availability services, which consist primarily of application clustering, are expected to follow soon after, some time in the first half of 1998.

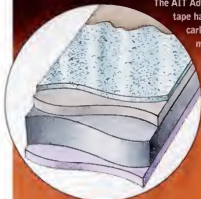
IBM, in Armonk, N.Y., is at <http://www.ibm.com>.

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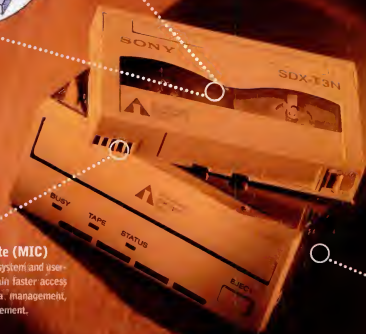


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In Touch with Tomorrow
TOSHIBA

Lucent, Nortel give voice to ATM

■ ATM networks get a reliability boost and a lower price tag

By Stephen Lawson

TWO TELECOMMUNICATIONS giants are reading ATM products designed to make combined voice and data connectivity easier, more reliable, and less expensive.

Lucent introduced a more powerful ATM switch for carrier core networks, a new switch for edge networks and large enterprises, and a pair of access switches for bringing customer traffic into carrier ATM networks. (See graphic.) It also launched a single network-management platform for all of them.

Also last week, Northern Telecom (Nortel) officials said the company is trying out a PBX that incorporates an ATM switching fabric.

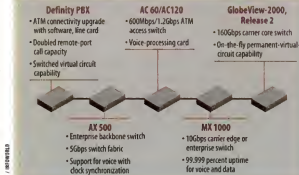
Lucent officials said the company's offerings will give the reliability of existing voice networks to ATM networks that carry data, video, and voice over LANs and WANs.

For enterprises, the company rolled out the AX 500 ATM backbone switch and introduced a card for its Definity PBX that converts voice to ATM cells for transmission over an ATM backbone.

The OneVision Network Management platform will allow consistent management and works with other applications, including HP OpenView and Bay Optivity. All of the products will be rolled

Lucent's ATM splash

The voice giant last week introduced a series of ATM hardware products for enterprises and carriers, and a single management platform for all of them.



out by mid-1998.

Nortel will offer by mid-1998 a version of its Meridian 1 PBX that has an ATM switching fabric in place of the time-division multiplexing matrix found in most PBXes. Users will be able to upgrade their PBXes with the ATM fabric.

An engineer at Yale University, where the technology is in trials, said the switch could solve a potential capacity crunch, and a lot of money.

"You're now seeing a PBX move to data-standard technologies. It's possible to share the same ATM

fabric," said John Miekke, director of telecommunications planning and technology at Yale, in New Haven, Conn.

Analysts said Lucent follows other vendors in the ATM market, but its addition of Bell Labs-developed reliability and management features should advance users' multi-service capabilities.

Lucent Technologies, in Murray Hill, N.J., is at <http://www.lucent.com>. Northern Telecom, in Richardson, Texas, is at <http://www.nortel.com>.

Groupware, extranets

Novell gears apps for Web

By Lynda Radosevich

NOVELL LAST WEEK launched the latest upgrade to its GroupWise groupware product, as well as two products in its BorderManager extranet family, in both cases placing heavy emphasis on Web integration.

Announcing the products, Novell CEO Eric Schmidt also restated his commitment to rewriting all Novell services in Java, given time. "It will take years, not months," Schmidt said.

In the meantime, Novell's Java effort is apparent in GroupWise 5.2, an upgrade that gives browser users the same access to GroupWise that they would get using the GroupWise client, according to Novell.

The support is provided via HTML 3.0 and Java applets that perform personal calendaring, group scheduling, and task-management functions that are not yet covered by Web standards.

"If you have a browser that supports Java, you can pour the GroupWise client into it," said Eric Arnun, editor of *Electronic Mail and Messaging Systems*, a Washington-based newsletter.

"That can free IT managers from client-side upgrade and support cycles," Arnun added.

Other GroupWise 5.2 features include support for IMAP4, POP3, and the Lightweight Directory

Access Protocol; GroupWise Monitor, which provides physical and logical system views and alerts to problems; and Administration Object API, which gives an interface for GroupWise administration.

GroupWise 5.2 is available now, priced from \$718 for five users.

In the future, Novell officials said the company will enhance GroupWise's Internet support with Web Distributed Authoring and Versioning for document management, Secure MIME and Open PGP for security, and Internet Calendaring Access, said Eldon Greenwood, Novell director of product management.

Novell also announced BorderManager FastCache, a caching product that speeds Web-page access by 10 times to 200 times by storing frequently accessed pages on a local server, officials said.

FastCache was carved out of BorderManager, which will be out in November. Pricing was not revealed.

In addition, Novell announced BorderManager Authentication Service, which tracks remote users' access to internal networks. Scheduled for launch in early 1998, it is based on the Remote Authentication Dial-In User Service for Novell Directory Services.

Novell Inc., in Orem, Utah, is at <http://www.novell.com/>.

IBM licenses Palm Pilot

By Dan Briody and Ephraim Schwartz

WITH THE RELEASE of WinCE 2.0 expected by the end of the month, vendors are heating up the handheld PC and minineobook race with new products from IBM, Mitsubishi, and Texas Instruments.

IBM won't be throwing its hat into the Windows CE ring anytime soon with its announcement this week of plans to license the Palm Pilot hardware and software from 3Com and market it as the IBM WorkPad.

The device will include the same features in the current Palm Pilot Professional, and it will cost \$399, sources close to the company said.

"From IBM's point of view, this is not a big risk," said Randy Giusto, director of mobile-technology research at International Data Corp., in Framingham, Mass.

3Com also plans to license the Palm Pilot technology to several other vendors.

Meanwhile, Mitsubishi is reading a minineobook for announcement on Oct. 27, which will compete with Toshiba's Libretto.

The Amity CN will weigh 2.4 pounds and measure 9 inches by 7 inches by 1.34 inches. It is based on a 133-MHz Pentium with 16MB of RAM, a 1.2GB hard drive, two PC Card slots, a 7.5-inch Diamond Fire Passive screen, and it will run Windows 95. The keyboard will have 16-mm key pitch and 2-mm travel.

In related news, Texas Instruments announced last week the Avigo, a handheld device that will include Lotus Organizer 97.

The Avigo will feature a backlit display and a collapsible docking station, priced at \$299.

IBM, in Armonk, N.Y., is at <http://www.ibm.com>. Mitsubishi Electronics America, in Cypress, Calif., is at <http://www.mitsubishi-electric.com/>. Texas Instruments Inc., in Dallas, is at <http://www.ti.com/>.

Encryption

Security Dynamics' encryption gets approval

By Matthew Nelson

SECURITY DYNAMICS has announced that its RSA SecurPC 2.0 encryption product has received U.S. government approval for international export.

RSA SecurPC 2.0 is the first general-purpose, 128-bit, level-encryption system approved for export that doesn't use a third-party encryption provider.

The government has fought 128-bit export because it would be inaccessible by law-enforcement agencies if necessary, while encryption users are unwilling to give the government easy access to secure transmissions. Security Dynamics has met the government half way through a "self escrow" system within RSA SecurPC 2.0, according to Walt Sizer, senior product manager for enterprise Internet applications at Security Dynamics.

"We received the authority to

basically be able to ship to all financial institutions, including banks, and all U.S. and Canadian companies with foreign subsidiaries, full-strength 128-bit encryption based on the government's acceptance of the key-recovery mechanism in SecurPC," Sizer said.

RSA SecurPC 2.0 includes a key-recovery system that holds a copy of all private keys in use with SecurPC within a company.

As necessary, for internal use or through a government-agency request, the private keys used to encrypt a message can be found and used to decrypt a message using the key-recovery system.

To avoid misuse of the key recovery, SecurPC can be configured to require a quorum of officials to agree to gain access to the keys.

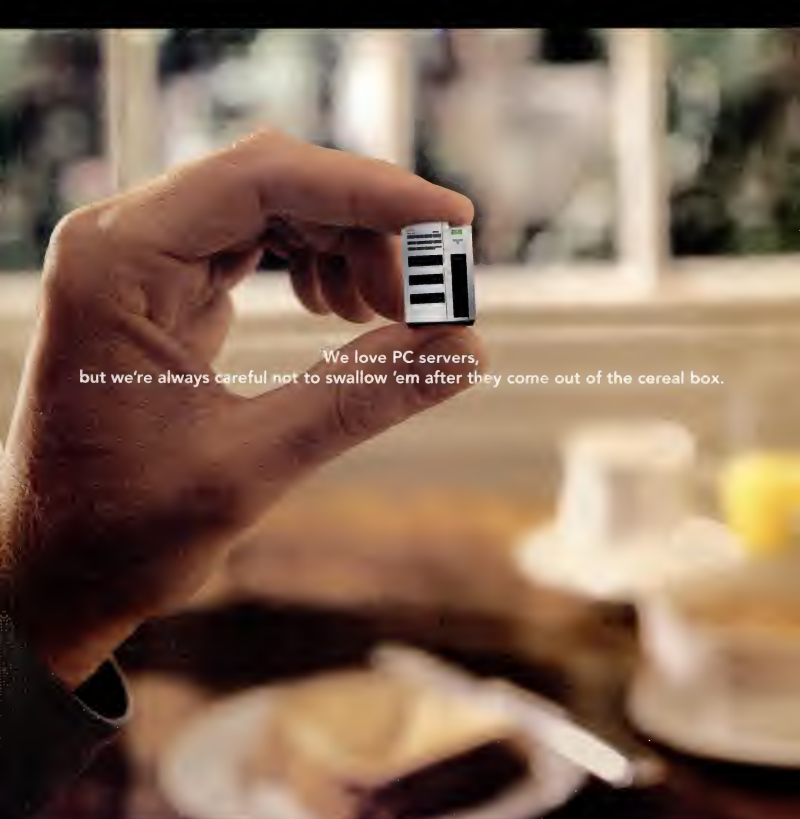
"We can establish a set of trustees for the recovery of the private key at the recovery station," Sizer said.

"The likelihood that you're going to have an abuse among four individuals is fairly low."

Some analysts believe the self-escrow system may answer government encryption export problems. "In the industry there is no efficient system for key recovery or key escrow," said David Herman, director of global electronic commerce at Dun & Bradstreet, an industry information provider in Murray Hill, N.J. "This may be a solution."

RSA SecurPC 2.0 is available for Windows 95 at a cost of \$59 per seat.

Security Dynamics Technologies Inc., in Bedford, Mass., is at (781) 687-7000 or <http://www.securitydynamics.com>.



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applications with worldwide customer service. As for performance, the Enterprise 450 makes the average PC box (like a Compaq ProLiant) look – well, pretty average, with 42% better SPECint95, and 30% better OLTP. As for throughput, it's better by 150% on internal disk, 230% on memory access, and 277% on PCI I/O. All for a price that should be a pleasant surprise, though it may have a different effect on our PC friends. For more, check us out on the Web at www.sun.com/wgsi **THE NETWORK IS THE COMPUTER™**

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RELIABILITY	A	C
AVAILABILITY	B+	F
MANAGEABILITY	A	D
INTEROPERABILITY	B	B-

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Apple names Steve Jobs as interim chief executive

■ But Jobs' strategy for the company remains undisclosed

By Jeff Walsh

IN A MOVE THAT surprised no one, Steve Jobs was named interim CEO of Apple Computer last week.

Jobs apparently has vowed several press Web sites with confidential, off-the-record glimpses into his strategy for Apple, but so far none of it has been made public and former Apple stalwarts Steve Wozniak and Gil Amelio did not seem impressed.

If managers who want to continue to support Apple currently have no option but to bet on the secret plan in Jobs' head, which he said will be revealed soon.

Jobs said he has not revealed the strategy yet because words are not enough to help Apple.

"We are in a situation where decisions need to speak for us," Jobs said. "Lots of work [has been] going on for the past 10 weeks, and the results should be to be apparent within another three to four weeks and roll out between then and January to February of 1998."

Jobs is scheduled to present a key note address at next week's Seybold publishing trade show in San Francisco.

Former Apple CEO Amelio said he and Jobs have different strengths when it comes to running a company.

"I'll never be as charismatic as Steve and he will never be as good an operating manager as I am," Amelio said. "Running a company requires special skills that can only be mastered by experience and training."

Steve Jobs at work

A few of Steve Jobs' accomplishments since returning to Apple



- Killing off the company's clone-licensing program
- Teaming up with Microsoft
- Halting implementation of the Common Hardware Reference Platform
- Bringing Newton back to Apple
- Apparently shifting the focus of the company's immediate strategy to Mac OS and not, ironically, NeXT-based Rhapsody

Apple co-founder Wozniak said people need to realize the difference between things done for the good of the Macintosh platform and for the good of Apple, a company that isn't profitable. He said the company's hardware dominance after killing the clones is an example of something being done for the good of Apple.

"It's a simple formula. Price the computers above what it cost to make them. Fewer and fewer people may buy Macs at a higher price, but we can be profitable," Wozniak said. "Eventually, the Mac will be gone. Why keep developing and improving a product that has been passed by? The best thing for the owners of Apple is what's being done. But it's not comforting to Mac supporters. Evolutionary or revolutionary? Mac may be the best, but not the way to the next best."

According to Wozniak, Apple should pursue a different course.

"I think that Apple should support the Mac more heavily and price it accordingly... not let down [its] current supporters so much," Wozniak said.

He added that Apple's future is risky, but the company is on a good course, considering the direction in which it is heading.

"Unfortunately, to be sure that your course is the best, the past must be put aside," Wozniak said.

And if Wozniak were a developer today, would he be creating applications for the Mac platform?

"No, I'd look for something new and fresh and well-done," Wozniak said. "Or I might continue to develop upgrades."

Apple Computer Inc., in Cupertino, Calif., can be reached at <http://www.apple.com/>.

Apple faces yet another departure

APPLE'S EXECUTIVE vice president of marketing, Guerrino De Luca, left the company last week.

One analyst who follows Apple closely said De Luca may have left because he was not given the still-vacant CEO spot. The announcement of his departure came one day after Steve Jobs was named interim CEO. De Luca entered the vice president of marketing position in February.

"This is a personal decision which does not reflect my assessment of the company's prospects," De Luca said in an Apple press release. "We are seeing a lot of changes at Apple, and I'm confident that Apple will shine again."

Clone vendors to get Up-To-Date

APPLE LAST WEEK ANNOUNCED it would make its Mac OS Up-To-Date program available to Power Computing and Umax customers. Since cutting the program off to users who purchased clone systems, Apple acquired Power Computing and granted Umax a license to sell Mac OS 8-based systems. Under the program, users who purchased a system that did not ship with Mac OS 8 or on after June 22 now can get the system software for \$10. Umax and Power Computing expect to start shipping Mac OS 8-based systems by October.

Exponential files suit against Apple

LAST WEEK, Exponential Technology filed a \$500 million fraud and breach of contract lawsuit against Apple, claiming that the company forced it out of business by killing off the clone market and refusing to continue to buy Exponential chips.

"We were making microprocessors for the Apple and Apple-clone market," but Apple concluded it didn't want to use the chip and canceled its orders, said Stephanie Dorris, Exponential's acting chief financial officer.

With Apple's pullout, Exponential experienced a funding crisis, Dorris said.

— additional reporting by the IDG News Service

Banking services

IBM uses Java technology to win massive Brazilian contract

By Ed Scamell

IBM SCORED a significant win for its Java business last week in the shape of a contract to supply Latin America's largest retail bank with a variety of banking technologies and services based on Java, OS/2 Warp, and its Secure Electronic Transaction (SET) technology.

During the next three years, the Banco do Brasil plans to invest approximately \$1.8 billion in new technology, spending "several hundred million" with IBM and using Java in a central role in most instances, bank officials said.

► Banco do Brasil will turn 20 million of the 80 million lines of legacy code into Java code.

The bank will work closely with IBM to migrate its home-banking applications to Java and plans to train 900 employees — about half of its technical staff — in the Java programming language. It will use SET to secure its transactions over the Internet.

Officials said the bank will roll out 8,000 OS/2 Warp Servers and at least 19,000 — but possibly as many as 60,000 — OS/2 clients across its 4,300 branch offices. The branch office servers also will use IBM's MQSeries, Communication Server, and Personal Communica-

tions. All bank transactions will be handled on an MVS mainframe.

"We believe the future of commercial banking will be driven by the Internet, and we want a partner that will propel us into the future and let us do business more on a global basis. We think IBM was the only company that could offer us end-to-end solutions," said Ruy Barroso Junior, the CIO of Banco do Brasil, in Brasilia, Brazil.

Banco do Brasil also plans to use IBM's WorkSpace On Demand product, which works on top of OS/2 Warp Server to automatically deliver combinations of customized applications, data and inter-

faces to both full-blown PCs and thin clients.

Officials said the bank is the first end-user organization "below the equator" to implement WorkSpace On Demand. However, they declined to say specifically how they will use the product, noting that they are still early in the evaluation process.

The bank will use Java as a building block to extend its reach to deliver products and services to its 15 million customers worldwide through an initiative called Banco do Brasil Personal Banking.

The bank presently has three home-banking applications, including a client/server application

written using Microsoft's Visual Basic, a browser-based application, and a 3270 application. It plans to use IBM's Technical Projects unit to consolidate the functions of all three applications into one.

"To build these applications, we will be pulling from our library of JavaBeans, which we think will save [Banco do Brasil] the time and money associated with creating new 100-percent-Pure-Java-based solutions," said John Soyring, director of IBM's Worldwide Technical Projects business unit.

Bank officials said they plan to introduce a shopping product soon using SET. It will offer a secure site from which users can conduct electronic business. IBM will work with the bank to pilot the product in five Latin American countries.

IBM, in Armonk, N.Y., can be reached at <http://www.ibm.com>.

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Sony to compete with graphics capabilities of Macs

By Dan Brisky

SONY WILL TRY to capitalize on Apple's recent moves with its announcement last week of new graphics-heavy desktops and notebooks to be sold into the creative space currently dominated by the Macintosh.

The Vaio systems will feature a large number of graphics hardware and "creativity program" software bundles, as well as Pentium II processors, and will be positioned for the creative professional.

► Sony will bundle the CCD-ZS Desktop Camera for videoconferencing with the Vaio desktops.

IT managers are finally beginning to see the PC as an option for graphics-heavy use.

"We would consider buying a PC for creative uses because the applications are now available on the PC," said Brian Jaffe, director of network and client services at Bantam Doubleday Dell, in New York. "But we are not going to force Mac users to go to PCs. It's a battle not worth fighting."

The Vaio PCV-220 desktop will come with a 266-MHz Pentium II processor, 32MB of RAM, 512KB of Level 2 cache, a 4.3GB hard drive, a 100MB Zip drive, a 24-speed CD-

ROM drive, 4MB of EDO video RAM, MPEG-1, 3-D graphics acceleration, a 33.6Kbps modem, pre-installed software for Sony's DSC-F1 Digital still camera, IIP-V100 All-In-One Printer, and the CCD-ZS Desktop Video Camera for a price of \$2,699.

Sony also announced the addition of 5.3-pound notebooks into the Vaio line.

The Vaio PCG-719C notebook features a 233-MHz Pentium processor, 32MB of RAM, a 2.1GB hard drive, a 12.1-inch active-matrix display, and a 128-bit graphics accelerator

with 2MB of video RAM for a price of \$4,500.

The products will be available in October in the retail channel or directly from Sony.

Sony Information Technologies of America, in San Jose, Calif., can be reached at (800) 476-6972 or <http://www.sony.com/pc>.

UPS MOVES TO WORLD OF I-COMMERCE

LOTUS, IBM, AND United Parcel Service (UPS) have finalized an agreement to customize UPS' shipping and tracking capabilities to integrate with the software companies' Internet-commerce products to provide a common point-of-sale through UPS.

UPS has worked with Lotus and IBM to integrate Domino, Merchant and Net.Commerce with its system. (See "UPS to deliver i-commerce infrastructure," Sept. 15, page 1.)

"The tracking is our starting point and we intend to add more functionality later," said Andy Tibbs, UPS electronics group manager.

The alliance will also enable UPS to provide both Domino, Merchant and Net.Commerce to its customers via its sales force.

"UPS has approximately 1.45 million customers and some of them are looking for an [electronic]-commerce solution to sell on the Web," said Keith McCall, director of Lotus Domino applications at Lotus. "There will be a single point of contact for Lotus and IBM."

Some analysts doubt UPS' sales force's ability to sell software solutions, however.

"I would be skeptical to whether UPS' sales force would be able to sell Net.Commerce, which is a complicated Internet-server product," said Vernon Keenan, a senior analyst at Zena Research, in Redwood City, Calif.

IBM, in Armonk, N.Y., is at <http://www.ibm.com>. Lotus Development Corp., in Cambridge, Mass., is at <http://www.lotus.com>. United Parcel Service, in Atlanta, is at (404) 828-6000 or <http://www.ups.com>.

— Matthew Nelson





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ERG	No	No	No	Yes	Yes	No	Yes	Yes	
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Alternatives

Continued from page 1

Web-content creation based on HTML, Dynamic HTML, and Extensible Markup Language (XML) technologies starting this week with the introduction of HTML-based scripting tools. As a result, Java is being repositioned in Microsoft's toolbox as an alternative to C++ that only high-end developers will use.

"Dynamic HTML, along with XML, coupled with scripting, is by far the most pragmatic way to write cross-platform, client-side applications," said Tod Nielsen, general manager of developer relations and platform marketing at Microsoft.

As a result, Java may well be overkill for many applications.

"Dynamic HTML lets you do sophisticated scripting in a consistent manner to create a set of, in Microsoft's case, COM [Component Object Model] objects that work together," said Eric Brown, an analyst at Forrester Research, in Cambridge, Mass.

Microsoft's COM-based alternative, scriptlets, provides a reusable, lightweight way to create

content for Web pages.

"The promise of Java is to write once, run anywhere. We can prove that that's not true, and it will get worse, not better," said Tom Johnston, Microsoft group product manager for platform marketing.

Johnston said development speed matters; testing across incompatible Java virtual machines and moving from Versions 1.1 to 1.2 of the Java Development Kit will slow Java's overall acceptance.

Java champions disagree. "This is not about performance; it's more about Microsoft seeking a strategic advantage," said Jim Mitchell, vice president of architecture technology at JavaSoft, in Cupertino, Calif.

"I can do more complicated things, like database queries, that become too complicated in HTML [along with XML and scripting]. But does that mean Java goes away? No," said John Tighe, senior software architect at DataChannel, in Bellevue, Wash.

Microsoft Corp., in Redmond, Wash., can be reached at <http://www.microsoft.com>.

Lynda Radosevich and Bob Trout contributed to this article.

Intel

Continued from page 1

when you need them, not when the application decides to do so.

■ As a user gets familiar with a program, turn off wizards in the applications.

■ Use solid color for the desktop wallpaper and use a blank screen as the screen saver.

Some corporate IT managers expressed their disapproval.

"That's a lot to ask of corporate America, especially the autowave and the wizard. Most mobile users need those functions running to maintain their environment," said Matt Gafke, computer operations manager at Dominican Hospital, in Santa Cruz, Calif.

"If the little Plus Agents aren't doing a Defrag and ScanDisk and Chkdsk that Microsoft Plus does, they aren't getting done," Gafke added. "It would require IS departments to have more end-user involvement. We want more manageability and less end-user, local-system management issues."

"It's taking away the tools that we've been given by Microsoft,"

Intel's Mobile Power Management plan

Implement methods for low-power design for all hardware components to meet a target of 25-watt total power usage.

Improve system power through OS-level power management as implemented in the Advanced Configuration Power Interface.

Establish and implement methods for power-efficient software that can adjust its behavior based upon changes in factors such as power source and system state.

Gafke concluded.

Yet another IT manager was uncomfortable with leaving management tasks to the end-user.

"Corporations buy laptops for their road warriors, and some of those folks may or may not have extensive training on their laptop," said Phyllis Koch, manager and director of information technology for the City of Miami Beach, Fla., and a member of InfoWorld's Corporate Advisory Board.

"However, I like the idea that they gave us a list. There are some things in there that I might not have thought about or didn't know about," Koch added.

At the MPMI kick-off, one presenter after another pointed out that greater memory requirements, large

er hard drives, chip sets with greater functionality, and graphical features such as 3-D and MPEG2 crammed into a box one-eighth the volume of a desktop computer will eventually create a system

with a shorter battery life in a thermal environment too hot for a microprocessor to run reliably.

"They've now reached the threshold where you cannot increase the thermal budget anymore. They will be too hot and not have enough battery life," said Gerry Purdy, president of Mobile Insights, a consultancy in Mountain View, Calif.

"The industry better take heed to these guidelines to realize the benefits of faster performance," Purdy added. "Who doesn't want a Pentium II notebook? But we don't want blisters on our legs holding them."

Intel Corp., in Santa Clara, Calif., can be reached at <http://www.intel.com>.

Microsoft

Continued from page 1

tool in late October, sources said.

With this barrage of technologies and enhancements to NT 5.0 pushed by Microsoft, the company must also be sure to make them easily accessible to developers, one analyst said.

"They've got a long series of content-creation standards, formats, tools, and architectures rolling out on a very consistent basis—things like DHTML and COM+," said Harry Fenik, vice president at Zona Research, in Redwood City, Calif. "I hope they get their act together by releasing a Visual Studio encompassing most, or all, of the architectures that need to be supported."

Microsoft will make COM+ available in late or mid-1998 via service packs for Windows NT 5.0 and Windows 98, sources said. The next release of its tools suite, called Visual Studio 98, will give developers access to COM+, they said.

COM+ apparently represents Microsoft's attempt to make its object model easier to handle. One analyst characterized the technology as a run-time environment, or virtual machine, for handling tasks such as thread management, connection pooling, and process management in DCOM applications, thus allowing developers to imple-

WRAPS COME OFF CE 2.0

Microsoft will unveil to ISVs at its Professional Developers Conference in San Diego this week the Windows CE 2.0 operating system, code-named Mercury, and announce it publicly the following week at the Embedded Systems Conference in San Jose. HPC II products running WinCE 2.0 will show up at fall Comdex in Las Vegas. Products using a smaller version of the operating system, code-named Gryphon, will be unveiled in January at the Consumer Electronics Show in Chicago.

The operating system may surprise IT managers who would not have put a Windows CE device on their vendor-approved list.

"It will support Ethernet for the first time. [Network Driver Interface Specification] networking protocol is built right into the OS," said a source familiar with Version 2.0. "It will allow OEMs to build in Ethernet and hang

ment distributed applications with less coding.

And through a "connection-point" model in COM+, developers will be able to more easily modify COM objects, one developer said.

COM+ also will provide dynamic code generation, letting developers modify an object written in one language with another language, according to sources. However, the update does not provide inheri-

tance off a bus. It's a poor man's network computer."

Other features include the addition of Pocket PowerPoint and the capability to hang a VGA monitor off the bus, supporting display sizes from 240-by-200 pixels to 640-by-480 pixels.

The Microsoft e-mail WinCE client, Version 2.0 will support attached files. Personal, will also support Microsoft Foundation Class libraries. The included Internet Explorer 4.0 browser will now support frames and scripts in native HTML. For developers, the OEM Adaptation Kit is now modular, allowing developers to create smaller, less expensive devices.

"In the next six months, sub-\$250 products will be available," the industry source said.

Microsoft Corp., in Redmond, Wash., is at <http://www.microsoft.com>.

—Ephraim Schwartz; additional reporting by Dan Briody

tance, they said.

Attendees at the conference will get a "prerelease evaluation code" CD of Windows NT 5.0, with a full beta version due in the next few weeks.

The long-awaited NT 5.0, shipping in 1998, will have an API called NT Media Services to guide disk and CD changes.

Microsoft Corp., in Redmond, Wash., is at (425) 882-8080.

Performance

Continued from page 1

nology, code-named Train, that will debut with the company's HotSpot dynamic compilation engine in 1998.

Until now, one of the chief barriers to implementing Java has been its slow performance in compiling code, especially in complex number crunching. This means that developers don't have to include C++ code in their Java applications, thus forfeiting platform independence.

However, one ISV used Java to run complex mathematical equations for calculating the value of options in the currency market and was shocked at the results.

Cats Software, a Palo Alto, Calif.-based risk-management software vendor, found that Java performed only 4 percent to 10 percent slower than Visual C++ when running Partial Differential Equations.

"These results are staggering," said Jim Kleckner, chief technology officer at Cats. "I would have expected Java to perform about 100 percent slower than Visual C++."

Using Java Development Kit 1.1.3 with the beta version of Java Performance Pack, which features Symantec's just-in-time compiler, Cats ran the tests against Micro-

soft's Visual C++ 5.0 programming language.

However, Microsoft officials said that benchmarks can be set up to prove anything.

"Java is a great programming language; it's C++ without the ability to run bugs, but there is absolutely

no way it will run as fast as C++ or Visual C++," said Tom Johnston, Microsoft group product manager, for platform marketing, in Redmond, Wash.

One analyst was not surprised by the results.

"It is possible to obtain reasonable speeds with Java as long as you have a good architecture," said Anne Thomas, a senior consultant at the Patricia Seybold Group, in Boston.

Meanwhile, JavaSoft's Train garbage-collection algorithm promises to reduce performance bottlenecks by offering interruptible garbage collection, according to Jim Mitchell, JavaSoft vice president of architecture and technology.

"Train is a highly effective method of garbage collection because it's interruptible," Mitchell said. "So there is no long pause when the application is delayed while garbage collection is carried out."

Train will be available with HotSpot and as a stand-alone version.

JavaSoft, in Cupertino, Calif., can be reached at <http://www.java-soft.com>.



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PIPELINE

SHIPPING

Apple Computer is shipping its Power Macintosh 6500 systems, which include 56Kbps modems, 24x CD-ROM drives, and large hard drives. Both the 6500/300 Home Edition and the 6500/275 Small Business Edition feature internal Zip drives. The Power Macintosh 6500/300 Home Edition features 64MB of RAM and costs \$3,000. The Power Macintosh 6500/275 Small Business Edition ships with 48MB of RAM and costs \$2,800. Each system also ships with a 6MB hard drive. The Power Macintosh 6500/250 Home Edition is equipped with 32MB of RAM and a 4GB hard drive. Apple Computer Inc. (408) 996-1010; <http://www.apple.com/>.

The TELEVIDEO SVP270 SuperView Pro 17-inch (15.8-inch viewable) monitor offers an aperture grille pitch of 0.25 mm and a maximum



noninterlaced resolution of 1,600 pixels by 1,200 pixels at a 75-hertz refresh rate. The aperture grille, along with a dark tint, antiglare, antireflection screen, tallens the monitor for desktop publishing, graphic design, computer-aided design, manufacturing, and engineering applications. Its suggested price is \$889. TeleVideo Inc. (408) 954-8333 or <http://www.televideoinc.com/>.

HEWLETT-PACKARD offers SureStore CD-Writer Plus, a CD-ROM rewritable drive, which combines the simplicity of a floppy drive with the 650MB capacity of a CD-ROM. The internal 7100i is priced at \$499, and the external 7100e is \$610. Hewlett-Packard Co.: <http://www.hp.com/>.

CLIENT

■ Companies compete with direct vendors on lower prices, purchasing options

By Dan Brody

IBM AND HEWLETT-PACKARD last week enhanced their PC distribution models in hopes of eventually lowering prices to compete with direct vendors.

In the trendy new world of refining PC distribution, all of the major indirect PC makers have reinvented their sales models during this past year, offering end-users a confusing array of purchasing options.

"The message from the vendors is that, like Dell, 'We will be passing on our savings to the end-user,'" said Roger Kay, an analyst at International Data Corp., in Fram-

Users' choice

With Hewlett-Packard's Extended Solutions Partnership program, buyers will be able to choose from three ways to purchase HP PCs.

- Vendor Express: Hewlett-Packard assemblies computer.
- Channel Assembly: Resellers assemble, customize, and distribute HP PC models.
- Economy Program: Customers select machines from a limited number of models.

ham, Mass.

IBM is moving the bulk of its PC manufacturing into the channel with new programs called the Advanced Fulfillment Initiative and

the Authorized Assembler Program. With these new systems in place, IBM will be manufacturing only the chassis and motherboards of new systems, with the channel handling the rest.

"In any corporation, you look at where the core competency lies, and IBM is a technology and marketing company," said Dave Boucher, vice president of channel sales at IBM. "We will continue to build the base models. What we won't do is customize solutions; we will use the channel to do that."

Meanwhile, Hewlett-Packard announced its Extended Solutions Partnership, which it hopes will

lower prices, speed turnaround, and increase the availability of customized PC models.

HP's Extended Solutions Partnership, scheduled to begin in the fourth quarter, is designed to help the company's indirect channel partners.

In the initial phase of this partnership, HP will begin manufacturing PCs based on channel orders rather than on forecast predictions, company officials said.

IBM, in Armonk, N.Y., can be reached at <http://www.ibm.com/>. Hewlett-Packard Co., in Palo Alto, Calif., can be reached at <http://www.hp.com/>.

Motorola expands offerings in microprocessor cores

By Andy Santoni

AS MOTOROLA's interest in Microtrends computers wanes, the company is shifting its attention to microprocessor cores, embedded CPUs that combine with memory and input/output circuitry to approach systems on a chip. Next month, Motorola will add a fourth processor core to its lineup, and the once Apple-centric PowerPC CPU will find new uses as Motorola teams with IBM to develop PowerPC chips for embedded applications.

Motorola next month will introduce another CPU core to complement its PowerPC, 68K/ColdFire, and digital signal processor Application-Specific Integrated Circuit (ASIC) cores. The M-Core is aimed at low-cost, low-power applications, such as wireless, consumer, and automotive systems, according to Jim Thomas, vice president and director of Motorola's M-Core Technology Center, in Austin, Texas.

Initially targeted at Motorola's own business units, the M-Core microRISC core will be offered to other companies to be surrounded by their circuitry and incorporated into their products, according to Thomas.

The M-Core CPU has a 32-bit architecture but uses a 16-bit instruction set, explained Jim Vittera, market development manager at Motorola's Wireless Subscriber Systems group. This reduces power consumption and cost while main-

taining performance, he said.

The same technique is used in Silicon Graphics' MIPS-16 CPU, noted Mel Thomson, an analyst at Micro Design Systems (MDR), in Sunnyvale, Calif.

"I think Motorola's move comes not a moment too soon," said Jim Turley, another MDR analyst. "Even a broad product line can have holes in it, and Motorola's has a big hole right in the spot where low-power, 32-bit ASIC cores go, a region that ARM [Advanced RISC Machines], MIPS, and some newcomers address today."

Although the M-Core is similar to the MIPS16, "it's really an ARM killer," said Tom Beaver, Motorola corporate vice-president of world marketing.

Meanwhile, Motorola and IBM Microelectronics are working out an agreement to cooperate on developing PowerPC chips targeted at embedded applications.

"We're going to craft parts for the integrated solutions market," said Beaver. These will not be simple chips that cost a few dollars, he said, but complete systems on-a-chip.

The two companies have been independently developing embedded PowerPC processors, an IBM representative noted. Under the agreement, the two companies will produce similar devices, as they do with chips aimed at Mac OS systems.

Motorola will also develop new

► MOTOROLA page 34

Cores without Apple

As Motorola shifts its focus from Apple systems to embedded applications, the company is targeting four processor cores at its four divisions (■). Each division also helps the other divisions to use its processor (■).

	Networking & Computing	Consumer Systems	Transportation Systems	Wireless Subscriber Systems
PowerPC	■	■	■	■
ColdFire	■	■	■	■
M-Core	N/A	■	■	■
DSP	N/A	■	N/A	■
1. Digital signal processor				SOURCE: MOTOROLA

STREETPRICES Flatbed scanners

FOR THE WEEK OF SEPT. 22

	Resolution	Low	High	Average	Change from
24-bit color model					
Hewlett-Packard ScanJet 5p	300 by 600	\$260	\$379	\$303	-20%
Mustek Paragon 1200 SP	600 by 1,200	\$265	\$344	\$304	-1%
30-bit color model					
Agfa StudioStar	600 by 1,200	\$673	\$854	\$758	N/A
Epson ES-1000C	400 by 800	\$273	\$500	\$385	-26%
Hewlett-Packard ScanJet 6100C	600 by 1,200	\$697	\$800	\$744	N/A
Microtek ScanMaker ES Pro	600 by 1,200	\$466	\$586	\$511	-3%
Relays Infinity Taurus	600 by 1,200	\$379	\$529	\$440	-8%
Umax Astra 1200S	600 by 1,200	\$485	\$649	\$550	-14%
36-bit color model					
Epson Expression 636 Executive	600 by 600	\$688	\$866	\$763	-1%

THE LINEUP

Products	Last priced	Next pricing	Products	Last priced	Next pricing
Flatbed scanners	The issue	Dec. 22	Multifunction printers	Sept. 8	Dec. 1
Hard drives	Sept. 1	Nov. 24	Persiana desktops	Sept. 15	Oct. 13
Jet printers	Aug. 25	Nov. 10	Persiana notebooks	Aug. 11	Oct. 6
Laser printers	July 21	Oct. 20	RAM	Aug. 4	Nov. 1
17-inch monitors	July 7	Sept. 29	Servers		Oct. 27

All recent Street Prices listings are available at <http://www.infoworld.com>. InfoWorld street prices are based on telephone surveys of retailers, online resources, and on print advertising in computer publications and regional newspapers. Information was collected between Sept. 7 and Sept. 13. All systems are color, come with a SCSI adapter and support gray-scale images. All systems include optical character recognition software. All systems also come with PhotoPlus II image editing software, except for the HP models, which come with Canon's PhotoPlus, and the Microtek and Umax models, which come with the full version of Photoshop.

1. Optical resolution horizontal dpi by vertical dpi.

2. Model not included in June pricing survey.



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Norton ships AntiVirus family that covers all the bases

By Jeff Walsh

SYMANTEC IS SHIPPING multiplatform versions of its Norton AntiVirus (NAV) 4.0 products this week, including a version for Windows NT servers.

Users will get NAV 4.0 on one CD-ROM,

which can then install the DOS, Windows 3.x, Windows 95, and NT versions of the software. A NAV Deluxe CD-ROM has free software upgrades for two years, system security software to protect against hostile ActiveX and Java applets, Norton Safe on the Web policy software,

and Norton Secret Stuff encryption software.

One beta tester said he uses the software to reassure visitors to his Web pages that they are downloading virus-free information.

Mark Graves, manager of educational electronic resources at the American College of

Obstetricians and Gynecologists, in Washington, uses a CGI script to show Web visitors that NAV is running and when virus definitions were last updated. Graves said he finds the most powerful feature to be Live Update, which lets users preschedule regular virus updates. An e-mail component to Live Update lets users get timely information about new threatening viruses and hoaxes.

To counter the proliferation of macro viruses, Symantec has unleashed Bloodhound technology, which uses heuristic techniques to detect virulike activity and alert the user.

NAV 4.0 for NT servers can be installed on remote NT servers and workstations with NT services. The product can be configured to handle different viruses as company policy dictates, and IS managers can determine how they would like to receive virus-definition files.

All NAV products are currently shipping. NAV 4.0 costs \$50 and NAV 4.0 Deluxe costs \$70. NAV for NT servers costs \$500 for one NT server and 10 NT workstations.

Symantec Corp., in Cupertino, Calif., can be reached at (408) 253-9600 or <http://www.symantec.com/>.

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SUPPORT FOR SMART CARDS GETS STRONGER

By Andy Santoni

THE GLOBAL Chipcard Alliance (GCA) last week doubled its roster to 16 members, adding Elcotel, GemPlus, IBM, Landis & Gyr Communications, Microsoft, Northern Telecom, SPT Telecom, and Telstra.

"From where we sit it appears that smart-card technology is quickly moving toward the point where a standard can be simultaneously presented and approved by a standards body while being deployed by a large consortium of market-leading vendors," according to a newsletter by market-research company Zona Research, in Redwood City, Calif. "This announcement, we believe, rounds out the GCA membership and gives the organization greater clout toward that end."

"We believe the GCA may be nearing critical mass, making it impossible for the few remaining major players, including Schlumberger, Visa, and MasterCard, to continue their resistance," the newsletter stated.

"Our growing membership is evidence of the support for the GCA's efforts to achieve worldwide smart-card interoperability," said David Anastasi, vice president and general manager at US West Public Services, as well as GCA president and board member.

The first interoperability agreement was signed by GCA members PTT Telecom Netherlands/Unisource and Deutsche Telekom. This was followed by a similar agreement between US West Communications and GTE Public Communications. Most recently, the US West/GTE agreement was expanded to include Bell Canada.

Other GCA members include American Express, Oracle, and Telekom Malaysia.

The Global Chipcard Alliance, in Seattle, can be reached at (206) 345-2380 or <http://www.chipcard.org/>.



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Flashboards provides a remedy for monitoring networks

By Jeff Walsh

REMEDY THIS WEEK will announce Flashboards 2.0, the latest version of its visual management application to monitor service levels within a network.

Flashboards 2.0 features a Java client that

enables other network users to view performance trends within the system through a Web browser.

Flashboards enables individuals to better monitor information relevant to their corner of the enterprise. Help-desk managers can

see how many open calls exist and what the current trends are, whereas bean counters can track help-desk performance and individual employee performance.

Thresholds and alarms can also be set within the product.

One beta user stated that the performance increase in the new version was notable.

"From what we've seen, the performance increases on the client are substantial. It seems four times faster than the old releases," said Kent Johnson, senior adviser at Hoechst Marion Roussel, a pharmaceutical company in Kansas City, Mo.

Johnson was also impressed with the robust Java client features and performance.

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figures?

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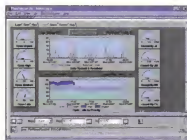
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FLASHBOARDS 2.0's Java client enables users to track service level agreements through a Web browser.

"It seems to be very intuitive for a Java applet. I was expecting sluggish performance, but I was getting the applet to initialize within only 3 seconds and the Flashboards screen appeared in only about 3 seconds," Johnson continued. "It will save us from deploying Flashboards at multiple sites. We can just give users the URL."

The help desk can also set up on "free access" Flashboards, which can be viewed by every user in the company without needing a special license.

Flashboards 2.0 is priced at \$16,500, which includes the Flashboards server, five user licenses, a proxy server, the Java client, an AR System Performance Monitor, and a free-access Flashboard. The product will ship in October.

Remedy Corp., in Mountain View, Calif., can be reached at <http://www.remedy.com/>.

Motorola

Continued from page 29

PowerPC CPUs for computers.

One upcoming CPU offers higher performance than is offered with the Intel/Hewlett-Packard Merced processor, yet maintains compatibility with earlier PowerPC processors, said Will Swearingin, PowerPC product marketing manager at Motorola.

Because it combines Intel's x86 and HP's PA-RISC architectures, Merced may wind up forcing developers to rewrite code, Swearingin noted.

If this creates problems with Merced, users may then switch their allegiance to PowerPC computers, Swearingin added.

IBM Microelectronics, in Essex Junction, Vt., can be reached at <http://www.chips.ibm.com/>. Motorola Semiconductor Products Sector, in Phoenix, can be reached at <http://www.motorola.com/>.

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SATISFACTION HP IS UNSURPASSED IN OVERALL SATISFACTION

Given that HP ranked at the top in both vendor reputation and service and support, it'd come as no surprise that HP excelled in overall satisfaction in the notebook market. Based on a scale of 1 to 5, where 1 is "not completely satisfied" and 5 is "completely satisfied," HP garnered the top score of 4.27 from 1,651 managers who purchase desktop systems.

1997 NOTEBOOK SURVEY RESULTS

	SERVICE AND SUPPORT	REPUTATION
HP	3.96	4.27
DELL	3.81	4.00
IBM	3.65	3.94
TOSHIBA	3.48	3.81

HP achieves highest rank among notebook vendors

	HP	DELL	IBM	TOSHIBA
VENDOR REPUTATION	4.27	4.10	4.00	3.94

Support grades show that users don't necessarily sacrifice service by choosing direct. HP's grade of 3.96 is the highest among all vendors. Dell's grade of 3.81 is the lowest.

You've decided what you want in a notebook. But before you decide which one to get, consider that in a recent customer survey by *Computerworld*,

HP OmniBook 5700
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HP was ranked at the top in overall satisfaction among 1,651 IT buyers of notebook computers. Perhaps that's because



HP OmniBook 800
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HP's entire family of OmniBooks was unsurpassed in the survey when it came to service and support, vendor comfort and reputation. Couple that with

the fact that HP scored significantly above average in every other category in the survey, and a certain something begins to ring true. From the value-priced OmniBook 2000, to the lightweight 800 model,



HP OmniBook 2000
Everything you expect from a high-performance notebook, except the price.



HP is being recognized as a leader

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Remove Exchange and Microsoft Outlook does break

I'VE WRITTEN MANY columns during the past year or so on the problems of Microsoft's "shared DLL" philosophy. I can't list them all here, but the fundamental problem is that many Windows applications, including Microsoft applications, require specific versions of specific DLLs. All kinds of havoc can ensue if a new version of a DLL is

installed by an updated application.

The original idea — that hard disk space could be saved if different vendors used the same DLL files — lost its appeal long ago. There are so many problems with shared DLLs that Microsoft should scrap this sorry arrange-



ment and simply require that all applications maintain their own, separate copies of DLLs in their own, separate folders (except for DLLs installed with Windows).

Microsoft itself has provided a doozy of an example of DLL confusion, and it affects people who install Office 97.

Reader Michael Markus says his organization is currently using Exchange Client 4.0 and is migrating to Office 97 and will use Outlook 97 as its e-mail and scheduling client.

After installing Office 97 and Outlook, you'd think the company could simply uninstall Exchange through Control Panel's Add/Remove Programs applet. But when the IT team did this, Outlook would no longer run, displaying the message, "A required DLL file, MAP32.DLL, was not found."

This error occurred even though those at Markus' company had answered "no" when the Exchange uninstall routine had asked whether to delete any shared components.

Despite the fact that Markus tried to keep these shared files, Exchange went ahead and deleted them. It does this because Exchange does not consider them to be shared files at all. But in fact, Outlook 97 depends on these files and won't work without them.

Microsoft has acknowledged the problem, and has more information at <http://www.microsoft.com/kb/articles/q156/8/19.htm> and <http://www.microsoft.com/kb/articles/q161/2/13.htm>. The only work-around available is to reinstall Outlook 97, or uninstall Exchange before installing Outlook.

Random number generator

Readers have also commented on the "OEM number" that Microsoft requires when you install some applications from a CD-ROM.

One reader was installing a copy of Windows NT, but had left his CD case with the number elsewhere. In desperation, he typed in an "OEM number" from a new Microsoft mouse. To his surprise, it worked! So much for the security of these numbers.

The route not taken

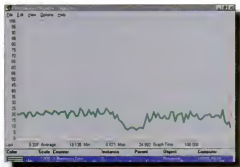
In my Aug. 25 column ("View Internet and intranet windows simultaneously," page 32), I described a way to help Windows 95 display two browser windows: one displaying a page from the Web, the other from an intranet site. This isn't possible without using the command ROUTE ADD X MASK Y Z, where X, Y, and Z are IP addresses.

I used 255.255.255.0 as an example of a sub-net address that you might use as the value of Y. I didn't mean to imply that this was the only value that could be used. Readers Lawrence Liddiard and Bruce Marshall, for instance, used modified sub-net addresses, such as 255.255.255.128 and 10.0.0.1, in their companies' networks. If you're unsure, ask your network administrator for the correct value for your network.

Brian Livingston is co-author of several best-selling Windows books, including the most recent *Windows 95 Secrets* (IDG Books). Send comments to brian_livingston@infoworld.com. Unfortunately, he cannot answer individual problems.

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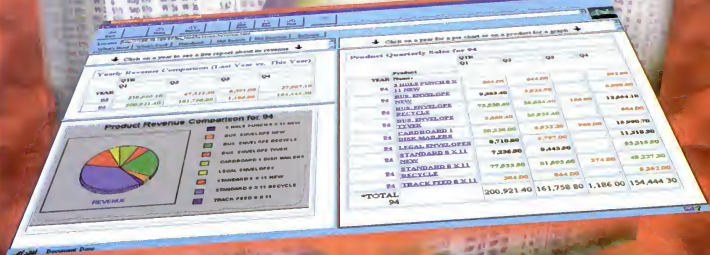
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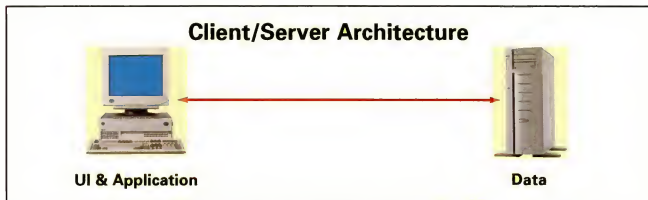
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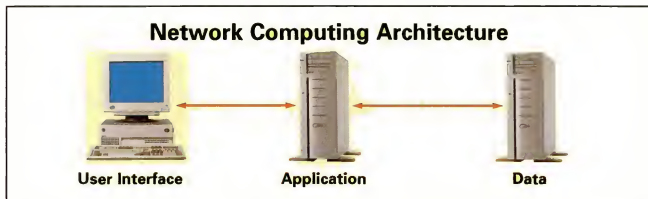
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PIPELINE

SHIPPED

Hewlett-Packard shipped HP-UX 11, the 64-bit upgrade of its Unix OS. HP-UX 11 also adds kernel-threads support to support parallel application execution and can perform a backup of much as 1 terabyte per hour. In addition, the company has added a revamped Java Virtual Machine with a just-in-time compiler for HP-UX and updated its TCP/IP support. The upgraded OS is available with HP's PA-RISC workstations and servers. Hewlett-Packard Co. (650) 857-1501.

MAGIC SOFTWARE ENTERPRISES is shipping the update of its namesake table-based rapid application development tool, adding Java, JavaScript, and ActiveX support. Magic, Version 8, also features graphical application partitioning, a third-party Magic server API, and automatic HTML generation. Also included are a version-control utility for team development, application management capabilities, and a Dispatch Monitor request broker. The upgrade's Automatic Program Generator provides batch HTML report generation and the creation of pages combining text, SQL data, and graphical components. Pricing was not released. Magic Software Enterprises Inc. (714) 250-1718.

AQUEDUCT SOFTWARE released its Aqueduct Profiler, an application-monitoring utility for software testing, help desk, online software sales, and other tasks requiring information on how applications are used. The Profiler comprises an Aqueduct Library, which resides on the application to be monitored, that records and transmits data via SMTP e-mail or saves files to disk; an Aqueduct Extractor, which compiles usage data; and the Aqueduct Profiler analysis tool. The Aqueduct Profiler is priced starting at \$15,000, based on project size. Aqueduct Software Inc. (650) 463-8700.

SERVER

Object databases take the stage

Sybase introduces JavaBeans plan and Adaptive Server Enterprise 11.5

IBM delivers DB2 Universal Database with parallel processing, new data types

By Paul Krill
SYBASE LAST WEEK officially unveiled its Adaptive Server Enterprise 11.5 database, featuring support for data types such as spatial and time-series data.

Also last week, the company said that it plans to offer its upcoming JavaBeans APIs as a standard for accessing Java applets in databases.

Improvements to Version 11.5 of the database include data warehousing, parallel processing, and security enhancements, such as Secure Sockets Layer support for Internet communications. Very Large Database support also has been added.

Support for functions such as object inheritance, in which object functions can be reused in subsequent objects, is planned for 1998.

One early user, who is implementing a spatial data application for studying occurrences of illnesses in geographical areas, is pleased with the product.

"We're able to point to the [computer-based] map and click in real time" on locations, said Chuck Walker, technology manager at Quest Diagnostics, a Rutherford, N.J. clinical lab testing company.

On the Java front, the company plans to work with Sun's JavaSoft division to develop a specification for submission to the American National Standards Institute (ANSI), said Sybase Chairman and CEO Mitchell Kertzman, who spoke at IT Forum, in New York. A submission to ANSI is planned within the next several weeks to a few months.

The intent is to utilize the APIs as a standard approach to storing Enterprise JavaBeans components in databases, thus making it easier to develop database applications without having to deal with proprietary database APIs, according to Kertzman.

"We think the overall database market would grow if there was a standard approach," Kertzman said.

Sybase would like support from rivals, such as Microsoft and Oracle.

Sybase plans to support its Java Object Model APIs in its enterprise database product in 1998, with a beta version of the APIs planned for

Object-relational databases arrive		
	Sybase's Adaptive Server Enterprise 11.5	IBM's DB2 Universal Database
Available	Now	Now
OSes	Windows NT, HP-UX, AIX, Sun Solaris, and Digital Unix	Windows NT, HP-UX, AIX, OS/2, and Sun Solaris
Price	Starts at \$3,595 for eight concurrent users	Starts at \$999 per server, plus \$199 per user

the upcoming Adaptive Server Anywhere PC database by the end of the year.

The company plans to utilize Java as its method of supporting data objects in its databases. Programmers familiar with other programming models, including ActiveX, would be able to access the Java objects via Sybase's Jaguar CTS middleware.

Sybase last week also unveiled DBQueue, a database-queuing system for integrating applications across the Internet or intranets.

Slated for release late this month, pricing for DBQueue starts at \$800 on Windows NT or Sun Solaris.

Sybase Inc., in Emeryville, Calif., can be reached at (510) 922-3500.

By Paul Krill
AFTER ALMOST ONE year of beta testing, IBM on Sept. 26 will ship its DB2 Universal Database that combines DB2 Common Server with DB2 Parallel Edition.

The database will implement parallel processing, work with new data types, and feature data-warehousing extensions. But users looking for advanced object-oriented functions will have to wait until a subsequent release, company officials said last week.

IBM's new database offers the processing power of parallel systems and works with data types such as multimedia, spatial data, image, and text. Data-warehousing features include dynamic bit-mapped index-

ing, star schema support for data analysis, and online analytical processing (OLAP) extensions, said Janet Perna, IBM general manager of database management, in Somers, N.Y.

Meanwhile, object functions such as polymorphism — for the development of commands that disparate objects implement in a similar fashion — and object inheritance that allows for reuse of definitions will be available in the next release of DB2 Universal Database, due for beta testing in late 1998, Perna said. These object features will be supported as part of IBM's backing of the SQL3 standard, Perna said.

Also planned is support for abstract data types, which would, for example, enable a person to be designated as an object.

One early user of DB2 Universal Database, however, was not disappointed with the lack of these features at this juncture.

"We would probably not be using any of them today," said Robert J. Hogan, group manager of customer service in the IS department at Russell, an athletic clothing manufacturer in Alexander City, Ala.

Russell is deploying DB2 Universal Database in an extranet application to enable distributors to study inventory, as well as in an internal manufacturing application.

Russell originally planned to use Microsoft's SQL Server database but chose DB2 Universal Database instead because of the easy replication it offers with DB2 running on a mainframe, Hogan said.

IBM is not alone in its lack of support for advanced object functions; Oracle8 also lacks support for features such as inheritance. To woo Oracle users, IBM by December will release a toolkit called SQL Conversion Workbench for converting Oracle software to DB2.

Also, IBM plans next month to release Intelligent Miner 2 data-mining tool for DB2 Universal Database in a beta version, Perna said.

And by the end of the year, the company plans to ship DB2 OLAP Server, which combines DB2 Universal Database with Arbo's Essbase data analytic functions.

IBM, in Armonk, N.Y., can be reached at (800) 426-3333.



THE BUG REPORT

Server bugs and fixes reported to BugNet

► **Lotus Notes** Notes' SMTPMTA 1.06 outbound-message converter may give the error message "general file system error on close/removed of ENCAPMTMP." This has been fixed in SMTPMTA 1.1. Also, Notes Domino 4.5.2 introduced a bug on all platforms, which may crash a server when the Collector task is monitoring a server and more than one alarm is activated but not cleared within the time specified in the Server to Monitor document. This is fixed by a hot fix, Release 4.5.2b.

► **Windows NT** in NT 3.5x and 4.0, if Remote Access Service (RAS) uses Dynamic Host Configuration Protocol (DHCP) to get IP addresses for dial-in clients, the only option that gets passed to the RAS client is the IP address. All the others in the DHCP scope are left behind. If you want the WINS addresses or DNS, then make sure the RAS server is configured for them. There is no way for the RAS server to get the NetBIOS scope ID from the DHCP lease.

► **Microsoft's Proxy Server** You may see Web pages successfully through Proxy Server 1.0 but get the error message "requested header was not found" or "HTTP/1.0 401 object not found." There are two possible causes: if virtual memory is set below the recommended size, it will stop after it uses all the memory or if you installed Proxy Server after NT Service Pack 3 and haven't reinstalled the Service Pack. As a fix, be sure virtual memory is at least 20MB greater than the recommended size, or reinstall the Service Pack.

► **Found a bug?** Let the Internet Electronic Journal at <http://www.infolworld.com/cgi-bin/DisplayForm.asp?file=forums.htm>. For more bug reports, browse to <http://www.bugnet.com>, or send e-mail to bugnet@bugnet.com.



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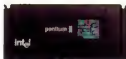
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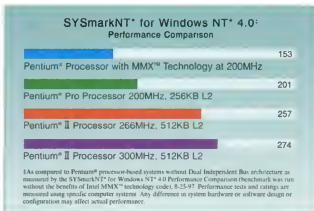
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Blue Lobster aims to ease Web mainframe integration

By Ed Scannell

BLUE LOBSTER SOFTWARE has released a Java-based software development kit (SDK) and server software intended to allow corporate and third-party developers to establish Web-to-mainframe connectivity capabilities.

Working together, the two products — the Mako Server and the Stingray 3270 Software Development Kit — give developers a choice of either connecting to a mainframe through 3270 terminal emulation or connecting directly to CICS-based (mainframe transaction processing system) servers.

With these two products, company officials believe they are offering an alternative to Web-to-mainframe tools and applications that lets developers eliminate the need for proprietary servers and languages.

Northwest, a regional bank in Minneapolis, is creating loan applications and hopes to leverage its investment in legacy systems with a Java front end that connects via CORBA to their mainframes.

"Mako has provided a set of valuable connectivity tools that seems to fit very well into our architectural strategy," said Bill Adamowski, chief technology officer at Northwest. "It enables us to create a reliable gateway between the Java client and server-side applications and our mainframes."

The Stingray SDK lets develop-

ers create Java-based applets and applications that communicate with mainframe applications via 3270 terminal emulation from any platform that implements Java, officials said. Stingray records host sessions, converts them to Java code, and creates Java applications that directly access information on host systems. With its 3270 emulator and JavaBeans components, users can run mainframe applications across the Web transparently, officials explained.

Java clients attach to the Mako Server, allowing users to communicate with any Extended Call Interface-enabled (ECI) CICS applications using a CORBA-compliant interface, officials said.

The three features of the Stingray 3270 SDK include Stingray Pro, a Java-based 3270 emulator and host session recorder; JavaBeans compatible with 3270 terminal emulation and keyboard components; and the TN3270 terminal emulation protocol classes.

The Mako Server includes the Mako client, a full implementation of the CICS ECI set of interfaces, and software for transparent mapping of CORBA to CICS and to Java Beans. The Stingray SDK costs \$795, or \$395 if purchased by Sept. 30. Call the company for pricing on the Mako Server.

Blue Lobster Software Inc., in Rochester, NY, is at (888) 880-2583 (toll-free).

ENTERPRISE NT TO HIT MARKET

By Bob Tratt

SQUEEZING IN just under its self-imposed deadline, Microsoft last week sent to manufacturing the Enterprise Edition of Windows NT Server 4.0.

The package, slated for commercial availability in October, will bundle with the NT 4.0 OS Microsoft's Transaction Server, Message Queue Server, and Cluster Server, which is Microsoft's clustering software that performs two-node fail over. Enhancements to Index Server, support for HTTP 1.1, and the Microsoft Certificate Server also are included.

The Enterprise Edition of NT also will boost the number of processors in a system that the OS can run across from four to eight, officials said. It will also grant applications access to as much as 3GB of memory, 1GB more than the existing version of NT Server 4.0.

The company first announced the Enterprise Edition of NT 4.0 at Scalability Day in New York last May, promising to deliver the package by the end of the third quarter.

For 25 clients, NT Server Enterprise Edition costs \$3,999. Existing NT Server 4.0 customers can upgrade for the price of \$3,199, which includes 25 new client licenses. In comparison, a 25-user version of NT 4.0 costs \$2,800; the price of NT Server 4.0 for a five-client license is \$899, Microsoft said.

Microsoft Corp., based in Redmond, Wash., can be reached at (425) 882-8080.



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OLAP vendors criticize Microsoft's API

By Paul Krill

ORACLE AND ARBOR Software are resisting efforts by Microsoft to make its new OLE DB for OLAP interface an industry standard for linking front-end analysis tools and OLAP servers.

Along with Microsoft, Sybase plans to implement the API set, formerly known as Tensort, in its online analytical processing (OLAP) servers.

But both Oracle and Arbor Software officials said they have no such plans. The vendors said their OLAP servers, Oracle Express Server and Arbor's Easbase, already connect with common front-end tools.

"As usual, we're interested in seeing open standards instead of

Microsoft standards," said Oracle's Jerry Held, senior vice president of server technologies, in Redwood Shores, Calif.

An Arbor representative also labeled OLE DB for OLAP too Microsoft-centric.

"We're still [working] with a lot of companies at the enterprise level, and those companies want systems that will run in a heterogeneous environment," said Kirk Cruikshank, Arbor senior vice president of marketing, in Sunnyvale, Calif.

Microsoft, which formally unveiled OLE DB for OLAP earlier this month, positioned the API set as an easy way to connect OLAP servers with tools. (See "Microsoft to enter OLAP fray with new tool,

interface," Sept. 8, page 10.)

"Any back-end [OLAP] vendor who has an engine [that] supports this API will immediately have lots of tools vendors or front-end vendors who can directly access their storage," said Doug Leland, lead product manager for SQL Server.

The specification, a derivative of Microsoft's OLE DB database access API, is in beta release now, with general availability planned by mid-December.

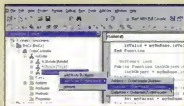
Sybase plans to support the API set in an upcoming OLAP offering, code-named Highgate, due later this year. Microsoft's OLAP product is expected in 1998.

Microsoft Corp., in Redmond, Wash., is at (425) 882-8080.

PRODUCT SPOTLIGHT

CVF 2.0 TO LEVERAGE VISUAL BASIC 5.0 AND WINDOWS NT 5.0

Siemens Nixdorf is working on Version 2.0 of ComUnity Visual Framework (CVF). Its add-on to Visual Basic that extends Microsoft's development tool to create multitiered applications. Version 2.0, slated for release before year's end, is being designed to better take advantage of Visual Basic 5.0 and integrate fully with the tool's development environment, said Jim Corbin, Siemens Nixdorf program manager, in Redmond, Wash. Although Win-



dows NT 5.0 will not be released until the second half of next year at the earliest, CVF 2.0 will exploit new features and services in the upgrade, according to Corbin, including the capability to write scripts with VB

Script and create components that work with services such as Microsoft's Transaction Server. In a subsequent release, Siemens Nixdorf plans to replace CVF's integrated repository with Microsoft's repository, he said. CVF 2.0 is set to begin beta testing in October. Siemens Nixdorf Information Systems Inc., in Burlington, Mass., can be reached at (800) 565-5650.



Storage market finds Fibre

By David Pendery

ANCOR COMMUNICATIONS earlier this month released GigWorks MKII, a Storage Area Network switch based on rapidly emerging Fibre Channel technology.

The MKII switch, using Fibre Channel, is designed to knit servers, storage systems, and other network elements into high-speed, protocol-independent Fibre Channel "fabrics."

At as fast as 100MBps data-transfer rates, Fibre Channel moves data along faster than SCSI, today's prevalent network communications protocol. UltraSCSI, transfers data as quickly as 40MBps.

Fibre Channel, in development since 1988 by the American National Standards Institute and several major computer companies, is the generic name of a set of I/O interface and communications protocols.

Fibre Channel technology works with SCSI, IP, ATM, FDDI, High Performance Parallel Interface, and other high-level protocols and therefore does not currently obsolete existing products, Ancor officials said.

"Fibre Channel was designed to run any protocol, so it leverages all the [existing] software that's been written," said Carla Kennedy, Ancor's vice president of marketing.

Ancor's 16-port MKII, scalable to 192 ports, is aimed primarily at high-end storage and data-transfer users such as banks or CAD/CAM networks. But Ancor officials anticipate mid- and even lower-level networks using the switch as their data storage and transfer-speed requirements burgeon.

Ancor said the MKII is the first Fibre Channel product to include arbitrated loop ports, with each of as many as eight ports parenting as many as 126 network nodes. This

"aggregated bandwidth" is a key benefit of the switch's use of Fibre Channel, officials said. The MKII also can govern point-to-point and switching network topologies.

Another advantage associated with Fibre Channel is its extended distance allowance. The protocol can be transmitted as far as 47 meters on coax/twinax cable and as far as 10 kilometers on certain fiber-optic cable. The protocol can travel along either fiber or copper cabling.

Many major server makers are adding Fibre Channel to their storage systems. Hewlett-Packard last week released its HP 30/FC and will resell EMC's Symmetrix 3000, both Fibre Channel-capable disk arrays.

Data General, Compaq, Silicon Graphics, and Digital also have released products using Fibre Channel, as have smaller players such as Computer Network Technology and Brocade Communications Systems.

"Those who were tentative and had not announced [adoption of Fibre Channel] are now announcing," said John McArthur, a program director at International Data Corp., in Framingham, Mass. "Everybody is going toward it; ubiquity is happening."

"[Fibre Channel] is definitely the wave of the next few years," added James Porter, president of Disk/Trend, a Mountain View, Calif., market research company specializing in storage products and technology.

Ancor said it will release a version of the product with larger port configurations by early 1998.

The GigWorks MKII costs from \$1,995 to \$2,495 per port, depending on the use of copper or fiber media modules and other options.

Ancor Communications, in Minnetonka, Minn., can be reached at (800) 342-7379.

MANUGISTICS TO EXTEND SUPPLY CHAIN WEB

By Stannie Holt

MANUGISTICS GROUP is introducing a family of software tools designed to let companies collaborate with suppliers and customers via the Internet.

Manugistics NetWorks, which is due out by December, will let companies that are part of a supply chain share information more effectively, getting products to consumers faster while cutting down on excess inventory, company officials said.

NetWorks' five applications — Forecasting, Planning, Available-to-Promise, Loadtesting, and Scorecast — operate via downloadable Java applets. At least one of the companies in the chain must use Manugistics Enterprise Resource Planning software as well.

The Internet is the key to getting suppliers, manufacturers, and retailers synchronized, said Gordon Taylor, Manugistics' director of marketing for the chemical and pharmaceutical industries.

The Internet is a perfect link between businesses that supply one another because it is fast, universal, and flexible enough to adapt to daily — even hourly — changes of partners as demands and production needs shift, Taylor said.

Manugistics' Release 5.5, which is due out next year, will sport more Internet features and distributed applications.

Manugistics Group Inc., based in Rockville, Md., can be reached at (301) 984-5000.



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Enterprise Resource Planning

SAP makes a sale in advertising

By Stannie Holt

MARKET LEADER SAP is extending its reach into a new industry—advertising— and has started at the top by landing global powerhouse McCann-Erickson as its first customer in this market.

McCann's decision to adopt SAP R/3 could shake up the ad industry, which one analyst said has changed little in its basic practices since TV commercials came along. But it could also mean substantial gains in productivity.

"This is somewhat of a watershed, in terms of the players," said analyst Jeff Berkel, president of the Agency Management Group, in Pittsburgh.

McCann hired IBM as a consultant to tailor SAP for its own needs, which include money management, billing clients, production cycles, and media buying. The agency hopes in a couple of years to start using IBM digital warehouses to store and call up past ads and information about clients.

The company predicts that similar solutions could be drawn up for other Enterprise Resource Planning (ERP) suppliers, such as PeopleSoft, said Doug Dreyer, an executive with IBM's advertising and publishing unit.

AdWare, which is a spin-off of McCann that tailors software solutions specifically for the ad industry, is also a consultant on this implementation.

A pair of giants

● **McCann-Erickson**, in New York, has about 240 offices in 117 countries and does \$10 billion worth of business per year. Major clients include Lantier, General Motors, Nestle, Coca Cola and Gillette.

● **SAP**, in Walldorf, Germany, has more than 11,000 R/3 installations worldwide. Its 1996 sales reached \$2.19 billion. Major clients include IBM, Reebok, Coca Cola and Mitsubishi.

McCann's roll-out is scheduled to begin at the end of the year.

Full implementation should make McCann at least 15 percent more efficient, according to Nick Dilorio, senior vice-president and chief technology officer at the company.

McCann is the biggest ad agency in the world, and SAP has a 40-percent share of the ERP market worldwide.

Attracting McCann marks the first venture by a major ERP supplier to provide a global solution in the advertising industry, according to Berkel.

Susan Irwin, communications manager for McCann at its New York headquarters, said the company first decided about two years ago that it needed a uniform information management solution for its 240 offices worldwide.

McCann settled on SAP, even though the software company had no experience in advertising, because it had a strong track record

worldwide helping many large companies to run more smoothly and profitably. Also, SAP is a German company, and McCann planned to start with its German operations that represent a key market for the agency, Dilorio said.

Berkel said this kind of high-tech solution is "absolutely a good idea" and long overdue in advertising. In fact, advertising is the most conservative industry when it comes to new technology of any he's dealt with, he added.

McCann has a reputation as the most traditional of all the major agencies; for example, the company does not have a Web site.

SAP America, in Wayne, Pa., can be reached at <http://www.sap.com>.

Oracle targets certain markets with vertical applications

IN ITS QUEST to expand its presence in the applications arena, Oracle last week announced a plethora of new application packages designed to appeal to industry-specific customers.

At the Oracle Applications User Group meeting in Orlando, Fla., Oracle announced that new applications suites are now available for the government, automotive, and aerospace and defense sectors. Oracle Government HR is a human-resources application aimed at the federal government market and integrated with Oracle Financials; Oracle Automotive, integrated with Oracle Manufacturing and Oracle Supply Chain applications, is tailor-

ed to the needs of the automotive industry; and Oracle Project Manufacturing is an application aimed at the aerospace and defense sectors.

Oracle also announced a new sales, service, and support application suite targeted at the burgeoning sales force automation market.

This application suite includes Oracle Sales and Marketing, Oracle Sales Compensation, and Oracle Service. (See "Bringing sales home," Sept. 8, page 1.) Pricing is \$12,500 for the core module and \$2,500 per sales representative. Pricing for other new programs was not available.

Oracle Corp., in Redwood Shores, Calif., is at (415) 506-7000.

— Katherine Bull

Visual FoxPro to adopt Transaction Server

By Bob Trott

MICROSOFT is planning to enhance the next version of its Visual FoxPro database-development tool with the capability to work with its Transaction Server technology, one Microsoft official said last week.

A feature called apartment model threading in the next version of Visual FoxPro, which is code-named Tahoe, will let Transaction Server automatically launch and manage multiple Visual FoxPro objects based on Microsoft's Com-

ponent Object Model specification, according to Paul Gross, vice president of Microsoft's Developer Tools Division.

The Transaction Server support will let companies protect their investments in FoxPro code because developers can reuse code in Visual FoxPro components, Gross said.

Tahoe also will include Active Document support, which will facilitate publishing and distribution of Visual FoxPro forms on the Web, Gross added.

Microsoft divulged no information regarding the timing of a beta version or an expected shipping date for the new version of Visual FoxPro.

The database tool will be updated in the same unspecified time frame as all of the company's development tools, which this past March were bundled into the Visual Studio suite, a representative said.

Microsoft Corp., in Redmond, Wash., can be reached at <http://www.microsoft.com/>.

HELP DESK • BRETT GLASS

Unix traceroute utility discovers network problems, catches spammers

I have heard there's a command in Windows 95 or Windows NT that, when you enter it at a DOS prompt, will show the hops that a message takes across the Internet. Sounds pretty cool, but does it really exist?

Eric Dischert

The command you have in mind is called TRACERT. It's Microsoft's implementation of a Unix networking utility called "traceroute." Any manager responsible for maintaining a TCP/IP network should know about it.

A TCP/IP network often is composed of many smaller networks connected by routers

called gateways. (The Internet consists of tens of thousands of such networks.) Because the Internet, like a robust corporate WAN, is multipoint connected, there may be many possible routes from point A to point B. It can be tough for a network troubleshooter to determine where a bottleneck, outage or broken router might be. The traceroute program, developed by Van Jacobson in response to a suggestion by Steve Deering, is one of the most powerful tools for this job.

The traceroute utility exploits a feature of the TCP/IP protocol called the TTL ("time to live") field. This field, present in every IP packet, holds an integer that decreases each time the packet passes through a gateway. When the integer reaches zero, the packet is discarded—preventing it from wandering around the Net forever. The router that discards the packet usually returns a polite notification, called a TIME_EXCEEDED message, to the sender.

The traceroute utility works by sending a series of packets toward the destination, setting the TTL field to 1 and gradually increas-

ing it. It notes the addresses of the routers that discard the packets along the way, and compares them from a list of the stops packets will make en route to their destination. It also records the time it took to get a response from each router, making it easy to identify bottlenecks. Though routing on the Net is dynamic, and successive packets may take different routes to the same destination, in practice the route seldom changes while traceroute

is running. Microsoft's implementation doesn't have all of the features and options of the latest Unix traceroute, so you may find that a Unix machine provides more detailed diagnostic information.

Heavy, widespread use of traceroute can cause network congestion and is not recommended. But when used in moderation, traceroute is an excellent diagnostic tool. In particular, it's been a key tool in the ongoing war against spam.

By tracing the route back to a spammer's lair, you can discover the identity of the spammer's ISP and ask that he or she be disconnected.



Do you know of any way to save the Windows Explorer settings (for example, window location and size) for each folder?

Keith McCreery

I have been asked this many times and have searched high and low for a satisfying answer. Unfortunately, the consensus seems to be that Windows Explorer—unlike the Macintosh—does not maintain this information.

If anyone knows of a utility that adds this feature, I would love to report on it in this column.

Search the Help

Desk archives on InfoWorld Electric for previous weeks' columns at http://www.infoworld.com/cgi-bin/display_newspil/press/bglist.htm.

Brett Glass has been working with PCs and networks and fixing their bugs for the past 15 years. To submit a Help Desk query, call (800) 227-8365, Ext. 702, or send e-mail to brett_glass@infoworld.com. Visit his forum on InfoWorld Electric at <http://www.infoworld.com>.

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OpenConnect last week announced integrated support for Netscape's NetCaster push software in its OC/WebConnect Pro host-to-Web connectivity application. OpenConnect officials said NetCaster support will let OC/WebConnect Pro users push for delivery of mainframe applications over the Web. This combination will let enterprises set up channels for mainframe access by customers and new users using HTML, Java, and JavaScript. OpenConnect Systems Inc.: <http://www.openconnect.com>.

SHIPPING

ASCEND COMMUNICATIONS and SECURITY DYNAMICS last week announced an Encrypted VPN Starter Kit designed to provide everything needed to set up a virtual private network including encryption, firewalls, and authentication. From Ascend, the kit includes a Pipeline 220 access router, Secure Access Manager security-management software, the Firewall Control Manager, and 25 copies of the Secure Access Personal Edition firewall. Security Dynamics is contributing its Ace/Server authentication software and 25 SecurID hardware tokens, which provide authentication for remote users. The kit is priced at \$12,000. Ascend Communications Inc.: <http://www.ascend.com>. Security Dynamics Technologies Inc.: <http://www.securitydynamics.com>.

BAY NETWORKS last week expanded its NetGear line of small-office products with three 10/100Mbps auto-sensing Ethernet switches. The switches include a two-port, a four-port, and an eight-port model. Pricing starts at \$349. The eight-port F5508 includes an internal power supply and can be rack mounted or wall mounted. Bay Networks Inc.: <http://netgear.baynetworks.com>.

NETWORKING

Start-ups rush to routing market

By Stephen Lawson

THE VORACIOUS APPETITE for network bandwidth has created an opportunity for a host of Layer 3 switching start-ups, but some users and analysts advocate that users stick with well-established vendors.

Start-ups are using a variety of technologies to implement wireless routing and attempting to differentiate themselves with features such as qualities of service.

■ Torrent Networking will take on Cisco's 7500 routers with wireless Gigabit Ethernet IP routers for enterprises and service providers, to be introduced this week.

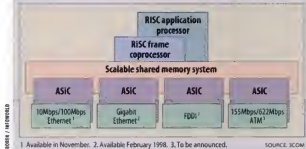
■ FlowWise Networks last week announced a Layer 3 switch family supporting both packet and cell traffic. The products let administrators set four static priority levels based on addresses or policies.

■ NBase is using Dynamic Host Configuration Protocol for automatic setup of virtual LANs in a Layer 3 switch that is shipping now.

■ Yago Systems, in which Cabletron has a minority investment, is developing a gigabit-speed switching router that uses Layer 4 packet-header information to provide application-level quality of service.

3Com distributes switching, routing

In 3Com's CoreBuilder 3500, an ASIC in each interface module forwards traffic using route information maintained in a shared memory. That route information is updated by a RISC application processor that runs routing protocols. A RISC frame coprocessor handles packets that carry complex filtering information.



Established vendors are also making their pitches for this market. 3Com last week announced a Layer 3 switch that provides routing and switching through high-speed programmable ASICs integrated in four interface modules. The CoreBuilder 3500 has RISC processors that run routing protocols and update route information on scalable memory shared by the ASICs. (See diagram.) This allows the device to route as many as 4

million packets per second (pps), officials said. The 3500 will ship in November and will cost \$8,995.

As part of the same architecture, the company soon will announce the CoreBuilder 9000, a switch that will concentrate backbone traffic and route as many as 56 million pps.

Observers said technology alone will not allow high-speed-routing start-ups to compete.

One WAN administrator at a large health care provider said service is

the top factor he looks for in a backbone-equipment supplier.

Being able to provide products from end to end is also a benefit, he said, said Jeff Greer, at HealthSource, in Hooksett, N.H.

"You don't have time to scream at three different vendors because one piece of equipment won't talk to another," Greer said.

Dave Passmore, president of the Decisys consultancy, in Sterling, Va., said some new companies are using information already included in packets to set classes of service.

"The beauty of some of these products is that you can drop them right into your existing network," Passmore said.

Nevertheless, any successful start-up will need a strong sales channel, Passmore added.

Torrent Networking Technologies Corp., in Landover, Md., is at <http://www.torrent.com>. FlowWise Networks Inc., in San Jose, Calif., is at <http://www.flowwise.com>. NBase Communications, in Chatsworth, Calif., is at <http://www.nbase.com>. Yago Systems Inc., in Sunnyvale, Calif., is at <http://www.yagosys.com>. 3Com Corp., in Santa Clara, Calif., is at <http://www.3com.com>.

Microsoft prepares beta release of SMS 3.0

By Emily Fitzloff

MICROSOFT WILL SHIP the beta version of its Systems Management Server (SMS), Version 3.0, code-named Opal, by the end of the year.

The new version will include enhancements such as automatic software distribution, and the ability to track Web appliances across a network.

But IS managers may not reap the full benefits of SMS 3.0 for some time, because the product's major benefit is expected to be its close integration with Windows NT 5.0, which is not expected to ship until August 1998 at the earliest. SMS's software-distribution capabilities rely on NT 5.0's Active Directory.

Some say NT 5.0 also appears to be encroaching on SMS's territory because it will include some management features that were previously the preserve of specialist management packages. NT 5.0, for example, will include its own software-distribution technology.

Microsoft executives downplayed the overlap, saying SMS will still be very attractive because its features are more robust and provide more advanced capabilities than those in NT 5.0.

■ Windows NT 5.0 is scheduled to go into beta testing in mid-September.

Victor Raisys, product manager for SMS, said NT 5.0's software-distribution capabilities are only suited for department-level deployment, but SMS 3.0 will provide it at an enterprise level. Raisys said this, together with other higher-end functions of SMS, is what maintains the IS need for SMS.

Analysts commented that comprehensive systems management is what users have been crying out for.

Tom Harris, research director at International Data Corp., in Framingham, Mass., said that although Microsoft executives talk a lot about the importance of ease of use, the company has been faulted during the past few years for inadequate systems management.

But Harris added that Microsoft appears to be addressing systems-management issues with SMS 3.0 and NT 5.0, as well as with Win-

dows 98. Harris said SMS 3.0 will ease migration and this issue is particularly important because Microsoft is aiming NT 5.0 primarily at large corporate environments.

Microsoft Corp., in Redmond, Wash., is at (425) 882-8080 or <http://www.microsoft.com>.

Artisoft CEO to leave company

FINANCIALLY struggling NOS vendor Artisoft has announced that its CEO and chairman, William Keiper, has resigned and will leave the company at the end of the month.

Paul Thomas, Artisoft's president and chief operating officer, will take Keiper's director seat, and Jerry Goldress, a turnaround manager appointed to the board in June, will become chairman of the board and oversee the company's operations.

The company does not currently plan to hire a replacement CEO, officials said, leading to speculation that the company may be putting itself up for sale.

According to Kimberly Hiller, a

network analyst at DataPro Information Services Group, in Delran, N.J., "It seems as if Artisoft will either fade away or be acquired."

Artisoft provided no specific reason for Keiper's resignation.

However, on Aug. 15, Artisoft reported a net loss of \$28.4 million, or \$1.95 per share, for the fiscal year ended June 30, including a \$11.2 million restructuring charge, as a result of poor sales of its LANtastic peer-to-peer networking product.

Artisoft Inc., in Tucson, Ariz., is at (520) 670-7100 or <http://www.artisoft.com>.

— Torsten Busse, IDG News Service (an InfoWorld affiliate), San Francisco

HP NetMetrix 5.0 gets improved RMON 2 capabilities

By Emily Fitzloff

HEWLETT-PACKARD is scheduled to announce this week its latest move in the network monitoring space with the introduction of NetMetrix, Version 5.0.

Additions to NetMetrix 5.0 include an

expanded list of RMON 2-compliant probes, interoperability with Cisco's Catalyst 5000 switches, and the consolidation of LAN and WAN information.

Jeff Thiemann, general manager of HP NetMetrix, said the product is designed to

complement HP OpenView's management platform with high-performance network monitoring and displays.

The explosion in Internet usage means network monitoring is increasingly difficult, but IT managers are still held responsible for

guaranteeing uptime and capacity.

HP officials said NetMetrix 5.0 addresses these issues by enabling administrators to pull LAN data off of the WAN and through

RMON 2 probes, which include a Fast Ethernet LanProbe and an FDL LanProbe. Elizabeth Raining, an analyst at International Data Corp., in Framingham, Mass., said that despite the fact that NetMetrix 5.0 is probably the highest speed network moni-



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HP's NetMetrix can monitor switch ports on the Cisco Catalyst 5000.

toring device available, the company needs to refocus its message.

HP officials need to explain to customers not only the company's technologies but their importance to corporate computing, Raining said. If HP wants to sell its NetMetrix products, Raining said that it "will need to do what its competitor, NetScout, does in discussing what network-response time really means."

HP NetMetrix 5.0 will ship at the end of this month with prices starting at \$5,995.

Hewlett-Packard Co., in Palo Alto, Calif., is at (800) 452-4844 or <http://www.hp.com>.

Ascend's Navis family manages network services

By Stephen Lawson

ASCEND LAST WEEK rolled out a network-management platform designed to give enterprise managers more power to monitor and tune the services they buy from network providers.

The company's Navis family of management software will control carrier-class hardware from Cascade — recently acquired by Ascend — as well as Ascend's Max, Pipeline, and other product lines.

The new NavisXtend platform will include applications for provisioning services, accounting for service usage, monitoring network performance, and other tasks.

In addition, network providers can distribute the functions of NavisXtend beyond central consoles to become more responsive to customer needs, according to officials.

For example, customer service technicians could use the NavisXtend Provisioning Server to set up additional lines immediately. Today, customers of most service providers have to wait for service orders to be forwarded and carried out by engineers.

NavisXtend also offers tools that allow customers as well as providers to monitor net-

ASCEND page 54

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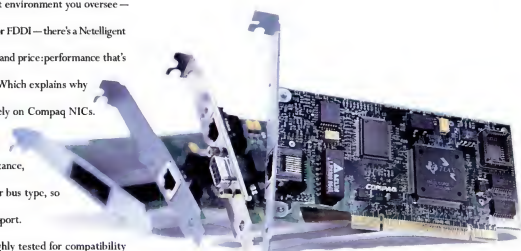
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COMPAQ

Has It Changed Your Life Yet?

IBM to buy Unison Software, merge it with Tivoli Systems

By Emily Fitzloff

IBM ANNOUNCED last week that it will acquire workload-management specialist Unison Software for about \$170 million, and merge the company with its Tivoli Systems systems-management subsidiary.

Once the deal has closed — it is awaiting approval from Unison's shareholders — the Unison product line, including workload management and balance and restore products for Unix and Windows NT, will be merged with the Tivoli Management Envi-

ronment (TME) 10 management suite.

The merger is "in all senses a very natural fit in that there is no product overlap but strong customer overlap," according to Martin Neath, senior vice president of Tivoli's Product Group.

Neath said that TME 10 will now offer cross-platform distributed job scheduling with the same Java-based user interface as the rest of the TME 10 product suite.

Although Tivoli did not issue a development time scale, integration of Unison's flagship Maestro scheduling products should be fairly seamless because the company is already a member of Tivoli's 10/Plus Association.

The 10/Plus Association provides a Tivoli-Ready module that "snaps in" to the TME framework to allow third-party companies to integrate products with TME.

Don Lee, chairman and CEO of Unison, said he was pleased with the agreement.

Lee also said that he has worked with Tivoli for several years through its 10/Plus Association, and that he has had a single vision: "tightly integrating the feature sets of our job scheduling and workload scheduling software into the TME framework to make managing network environments easier for customers."

Lee echoed Neath's sentiments that the two companies' operating styles are a natural complement to each other and that they share a common vision and corporate culture.

Tivoli Systems Inc., in Austin, Texas, is at <http://www.tivoli.com>. Unison Software Inc., in Santa Clara, Calif., is at <http://www.unison.com>.

IBM's acquisition of Unison should be finalized within 60 to 90 days.

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Ascend

Continued from page 52

work usage and faults. The applications are written with a published API, and Ascend has partnerships with Concord Communications, Actuate Software, and Auspex Systems that allow users of those companies' network-management tools to integrate NavisXtend.

Carriers and customers can use a Web browser to access graphical network information from anywhere on the network.

Most elements of NavisXtend are available now to network providers. Report Server, which presents network statistics, and Stand-by Server, for maintaining a backup management server, will ship by year's end.

Ascend's device-management application, NetClarity, has been renamed NavisAccess. Cascade's Cascade View, a tool for centralized management of Cascade's core switching products, is now called NavisCore.

Analysts said Navis lowers the technical barrier to carriers expanding their services.

"The products they were using to build these services were designed for enterprises, so there were inherent limits in what they could do," said Richard Villars, an analyst at International Data Corp., in Framingham, Mass. "With products like this, that barrier is starting to come down."

In the near term, Villars said he expects carriers to expand their frame-relay offerings.

"If this makes it easier for a carrier to act quickly, that's to the benefit of users," Villars said.

Ascend Communications Inc., in Alameda, Calif., can be reached at (510) 769-6001 or <http://www.ascend.com>.

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Firewall software

Centri 4.0 is feature rich but lacks some necessities

■ Cisco's debut version of recently acquired firewall gets a good spit and polish

By Mark Joseph Edwards

RECOGNIZING THE NEED for strong security in small and medium-sized networks, Cisco Systems has recently purchased Centri Firewall from Global Internet. Although Global Internet's version of Centri Firewall was

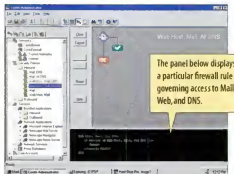
fairly good, Cisco has taken the product and added many more features (along with some polishing), and released Version 4.0 in almost no time at all.

Centri 4.0 is designed as a Kernel Proxy, which means that it runs in the Windows NT Executive (kernel) mode. The advantages of this fifth-generation architecture are many. For instance, running in kernel mode offers a significant performance increase because packets do not have to be passed into user-memory space for inspection and then passed back to kernel space for action.

Furthermore, inserting itself at that layer offers Centri the advantage of intercepting all TCP/IP packets before they reach the operating system itself. Therefore, Centri 4.0 is not as vulnerable to NT operating system bugs as other firewalls might be.

Administration foibles

At the administration level, Centri allows rules to be established and enforced based on NT Users, NT Groups, and NT Domains, which means that you do not have to establish a separate user database to control access in and out of your



CENTRI 4.0 has a unique way of displaying firewall rules. The panel on the left is a tree view display of available parameter settings.

firewall. Centri also offers fine-grain control that lets you control access rights on a per-user basis if necessary.

For example, if you want to allow only one person access to RealAudio through your Centri Firewall, you can. Centri also supports time-based access rules, meaning you could shut down all possible outbound Web (or other service) access after hours if you wanted to. Time-based access rules are a great way of preventing employees from using hidden network dial-ups to access the Internet through the company network after hours.

Another interesting aspect of Centri is Cisco's assertion that an administrator can safely run other services on the same NT box serv-

ing as the firewall. The prudent security administrator would not take this approach normally, because overtaking the firewall in effect means taking over all services on that firewall. The company says that because Centri operates as a Kernel Proxy this type of functionality is safe, but I'm still not certain if I agree with the assertion. Nevertheless, this type of functionality would result in a savings because there would be less hardware

required than if you ran necessary services on separate computers.

Centri also boasts support of application proxies for Telnet, FTP, e-mail, and the Web, as well as transparent support for Telnet, Web, FTP, multimedia and general IP, TCP, and User Datagram Protocol services. In addition, Centri provides content-filtering capabilities for Java, ActiveX, JavaScript, VBScript, specific URLs, and even some of the more dangerous SMTP mail-server commands.

The software also is capable of delivering reports in HTML format and supporting real-time alerts, and it offers an Administrator interface that can interact with numerous Centri firewalls so more than one be installed. Cisco said that the maximum number of users Centri 4.0 can handle is 1,000, so some networks may find themselves using two or more Centri firewalls.

Installing the software was relatively painless. The installation wizard guides you through a series of dialogs where you provide answers to build your initial firewall configuration. Once the product is installed and running, further configuration and management is performed using the Centri Administrator.

Although the Centri 4.0 Administrator interface is well-designed and looks very similar to the familiar Windows NT Explorer interface, I found it a bit more difficult to understand and navigate than other firewalls, such as Net-Road and Guardian.

On the plus side, overall rule making is probably equal to or better than other firewalls I've seen lately, with Centri employing an IF-THEN-ELSE way of rule building. Administrators who understand the basics

THE BOTTOM LINE

Centri 4.0

This Windows NT-based firewall uses a fifth-generation architecture that runs in the NT Executive kernel mode. Centri 4.0 allows multithreaded management from a single administrative interface, and is designed for small and medium-sized networks.

Pros: Robust rule-making capabilities; NT kernel-mode operation. **Cons:** Not as intuitive as other competing products when establishing firewall rules; no Remote Access Service support; no IPX support.

Cisco Systems Inc., San Jose, Calif.; (408) 526-4000, fax: (408) 526-4100; <http://www.cisco.com>.

Price: 100 users: \$3,495; 250 users: \$4,995; unrestricted users: \$7,495 (The unrestricted license for the Centri Firewall is recommended for sites with as many as 500 users; it is not an unlimited-user license).

Platform: Windows NT Server 4.0 with Service Pack 2.

Multifunction VPN box

Isolation Systems' VPN network toaster ready for prime time

By Stuart McClure

EVERY WEEK several vendors announce offerings in the virtual private network (VPN) space. The deluge of products has become so overwhelming that we all wonder how so many companies could be offering a complete VPN solution. Isolation Systems gets as close as you can to providing a turnkey solution aimed at small businesses or branch offices.

Isolation's InfoCrypt Server software is included in our comparison of VPN solutions in this issue beginning on page 80. The software—only sibling isn't overly impressive,

but InfoCrypt Enterprise v2.96p is definitely worth considering.

I was wholeheartedly impressed with this big, solid black box, which looks as if it could withstand a nuclear blast. Under the covers, the box is a Pentium-based VPN box, firewall, and router all in one.

Right out of the box, InfoCrypt Enterprise proves its merit with its management software. The InfoCrypt Manager software is a powerful tool for configuring and updating the Enterprise servers. The product offloads much of the command-line configuration typically

► INFOCRYPT page 54F

THE BOTTOM LINE

InfoCrypt Enterprise v2.96p

This hardware solution has appliance-like firewall, routing, and virtual private network (VPN) features. InfoCrypt Enterprise provides a well-rounded solution for the small to midsize office that requires a drop-and-go VPN system.

Pros: Elegant configuration; software updates; certificate-based authentication; better-than-average encryption. **Cons:** Not IPsec compliant; firewall proxies require TCP/IP port-number knowledge; limited routing capabilities.

Isolation Systems Ltd., Toronto; (888) 362-7978 (toll-free), fax: (416) 622-7577; sales@isolation.com.

Price: \$5,400 for InfoCrypt Enterprise, \$2,400 for InfoCrypt Manager software.

Platforms: Windows 95 and Windows NT supported for InfoCrypt Manager software.



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Questions, comments, kudos? Send a message to the editor at sarah_varney@infoworld.com. Please include "Talk Back" on the subject line. To reach a staff reviewer, use the format: first name_lastname@infoworld.com.

of programming will undoubtedly fare better at rule definition than those who do not. But that doesn't necessarily mean someone without any basic programming knowledge would encounter difficulty. Centri online help is fairly good at explaining a particular set of dialog options and features.

Overall, I like the Centri 4.0 Firewall but, given the fact that it does not support IPX networks or the Remote Access Service (RAS) used by so many small and medium-sized networks, it probably would not make my short list because I tend to deal with multiprotocol networks using RAS quite often.

Perhaps with additional features and support for multiprotocol networks, as well as Cisco's effort to integrate Centri with PIX, we'll see Centri evolve into a more widely usable firewall platform.

Mark Joseph Edwards is a writer and network engineer/consultant for Netropolis Technology Group, in Houston. He can be reached at mark@ntshop.net.

► Anti-virus software

LANdesk Virus Protect upgrade monitors NetWare, Windows servers from single console

By Todd Cooper

CONTRACTING A COMPUTER VIRUS ON your workstation is like visiting the dentist for gum surgery — you probably could have

avoided it with a little preventive maintenance. Intel's LANdesk Virus Protect 5.0 makes it easier to promote proper computer hygiene by letting system managers detect

viruses and protect client workstations and servers on both Novell NetWare and Windows NT networks from a single console application.

Like other enterprise-wide anti-virus products, such as Dr. Solomon's Software's Anti-Virus Toolkit, LANdesk Virus Protect uses the Microsoft domain concept as an organizational model. Virus Protect domains consist of NOS-independent collections of NetWare and NT servers, as well as any Windows or DOS clients that share the same settings and scanning options. However, it lacks support for Macintosh clients.

Because pools of workstations are independent from any other directory systems in place at your organization, I was able to logically arrange them according to their protection needs rather than network layout. I could also set up and password-protect as many domains as I needed, easily moving workstations back and forth between them.

I managed domains through LANdesk Virus Protect Administrator (VPA), a 32-bit program that runs under Windows 95 and Windows NT. In addition to managing domain membership, VPA let me configure scans, share virus pattern files, and view information about protected servers and connected clients. This came in handy because it let me perform maintenance and apply updates without having to go through the onerous process of visiting each client PC.

Layers of protection

Virus Protect offers a number of powerful anti-virus features to domain members hosting the appropriate client software. I could

THE BOTTOM LINE

LANdesk Virus Protect 5.0

This software lets you manage virus detection and prevention on both NetWare and Windows systems. Besides centralized administration, you have a wide variety of scanning, reporting, and notification options at your disposal. **Pros:** Low price; useful scanning features. **Cons:** No Macintosh client.

Intel Corp., Santa Clara, Calif.; (800) 538-3373, (503) 264-7354; <http://www.intel.com/network>.

Price: \$1,495 for one server and unlimited client connections.

Platforms: Windows 3.11, Windows 95, Windows NT, NetWare.

gate files being modified and accessed as well as inserted floppy disks and CD-ROMs.

Virus Protect let me deal with infected files in a number of user-configurable ways. I could move files to a specific folder, rename them, delete them, leave them alone, or cleanse them of the virus. I could also assign separate actions and backup actions for macro and nonmacro viruses, as well as create customizable messages to send to the screen of the workstation on which the product detected the virus.

To keep your pattern file up to date, Intel makes new pattern files available via its Web site and BBS. I was able to choose either manual or scheduled downloads to a primary server in the domain and then have the file automatically propagated to all clients.

To detect new viruses not yet included in a pattern file, Virus Protect let me enable checksum virus detection on a client-by-client or domain basis. This method uses a proprietary algorithm to calculate and store a checksum value on each individual file. The product compares this number against future checksums during the scanning process; discrepancies usually indicate an infection.

Incidentally, checksum virus protection works on partitions formatted for Windows NT File System and NetWare, but not on file allocation table partitions.

Additional scanning options in Virus Protect include the capability to execute log-in scans on client workstations, perform a start-up scan during client boot-up, and institute idle scans of local files and folders during periods of workstation inactivity. Like the other signature and checksum scanning, all of these options are fully configurable.

Be alert

Virus Protect uses the LANdesk Alert Management System (AMS) to automate the actions you want in response to virus detections on your network. Once I installed AMS on the primary Virus Protect domain server

► VIRUS PROTECT page 54F

Network

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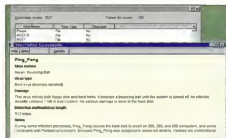
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INTEL'S ONLINE VIRUS ENCYCLOPEDIA includes information on more than 5,500 viruses. Here, symptoms for Ping Pong are listed.

choose to perform virus signature scanning manually, in real time, or on a scheduled basis for any combination of servers, clients, and domains. I found manual scans ideal for providing immediate results, and real-time scans continuously inspected files for known viruses stored in Virus Protect's pattern file.

Virus Protect can scan either all file types or only the file types you specify. By default, it includes files with .BIN, .COM, .DLL, .DOC, .DOT, .EXE, .SYS, and .XLS in the scanning process. It also allowed me to include NetWare and Windows NT system compressed files and compressed archives (.ZIP, .LHA) in the mix. For real-time scans, I could investi-

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THINGS HAVE NEVER BEEN BETTER.

InfoCrypt

Continued from page 54C

done on the console itself, to a simple, user-friendly interface.

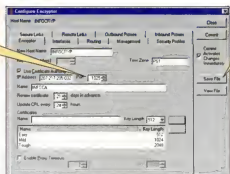
The manager software configures every aspect of the box including inbound/outbound proxies, encryption, security policies, routing, and management. Much easier than a TimeStep multistep update, the InfoCrypt Manager software updates are done with a single update function.

Isolation offers either a certificate-based or an authentication certificate-certification scheme to establish trusted parties in a secure communication. The certificate authority is a simple but effective solution that can authenticate any box on the network. The authentication key scheme allows you to use

Configuration abounds with allowing the certificate authority to respond on any port you desire.

a simple pass phrase or password rather than a digital certificate.

Isolation is not currently IPSec compliant, but it does offer a formidable proprietary solution in its User-Datagram Protocol (UDP) tunnel headers. Instead of the encapsulating security payload and authentication headers found in IPSec solutions, Isolation uses a UDP header that stores both the session key and the encrypted private key. This scheme adds a higher-than-usual level of encryption because each packet is encrypted with a different key that cannot be easily derived despite a crack to the



Each configuration can be changed before committing it to the encryptor. This way you can take your time to make the right configuration.

session key.

As with Isolation's software VPN solution, InfoCrypt Server, the hardware box supports Network Address Translation within the router functions. This can save you from ditching all of your illegal IP addresses. The box will simply take the illegal IP address used from a client and wrap it in a legal IP address assigned by an administrator.

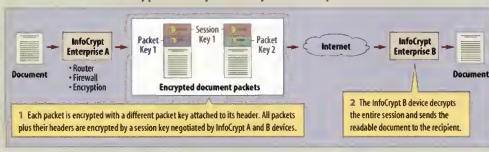
Triple-DES (168-bit).

The configuration tool is extremely helpful in correctly setting up the Enterprise boxes, but it lacks some niceties. For example, in the areas where you wish to allow or disallow a particular protocol such as FTP, you must use the port number (for example, 21), rather than simply selecting FTP. This adds a bit of complexity to the configuration.

Apart from a few limitations, this solution is a formidable offering in a crowded market niche. It may not be the perfect toaster, but it does come awfully close.

Stuart McClure is the enterprise platforms manager at the Info-World Test Center. He can be reached at stuart.mcclure@info-world.com.

InfoCrypt uses separate keys for each packet sent



Virus Protect

Continued from page 54D

it generated all of the alerts for the other computers in the domain. Available alert actions include paging, Internet e-mail, program execution, NetWare Loadable Module loading, broadcast messages, and displaying a message box.

Overall, I was very impressed by the degree to which I could tailor AMS to a site's particular needs. I configured it to send myself e-mail, broadcast a message on each infected workstation, and write a notice to an NT event log. In each case, it worked as advertised.

To further educate you, Intel provides an online Virus Encyclopedia, which contains a list of more than 5,500 detectable viruses, their symptoms, and whether they can be cleaned.

For sites that have a mixed NOS environment, LANDesk Virus Protect is a strong contender against the likes of McAfee's VirusScan and Symantec's Norton AntiVirus for NT. It takes a no-nonsense approach to virus detection and prevention, and it is chock full of features that should dramatically reduce administrative overhead.

Todd Coopee is an IS manager at an advertising agency in Connecticut. You can reach him at toddc@home.com.

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QUICK BYTES

100Base-T hub pair well-suited for workgroups

100BASE-T HUB HP AdvanceStack Hub-12TX and 12TXM

The latest 100Base-T AdvanceStack from Hewlett-Packard is a solid, robustly managed hub that can accommodate your bandwidth-hungry users without compromising your ability to control your network.



THE HP ADVANCESTACK HUB-12TX can support a total of five hubs per stack.

The AdvanceStack Hub-12TX supports a total of five hubs per stack, with the 12TXM acting as the management hub for the entire stack. HP's solution for multiple managed hubs in the same stack is great: Only the first hub becomes the management station; the rest are relegated to its backup, providing management redundancy.

I liked this 100Base-T solution for small workgroups because of its diverse features and manageability through HP's AdvanceStack Assistant software, which is almost

worth the admission price alone.

The software installs on your Windows 95 or Windows NT management station and gives you a complete picture of your network's topology, traffic, and hub alarms and filters. The Assistant discovers your IP/100Base-T networks and nodes and determines your hub stack's topology, allowing quick and easy determination of your configured network.

The traffic module lets you take a look at some general network statistics such as utilization and errors. Finally, alarms can be managed between the hub and the management station through the SNMP standard.

HP has no definite plans for 100Base-T/100Base-T support on all hub ports, so the AdvanceStack accommodates your 10Base-T users through a 10/100TX Module sold separately for \$499. The module allows a single-station 10Base-T hook, or a 10Base-T hub hook, to plug into your existing workgroups not yet graced by the Fast Ethernet fairy.

One configuration nicety lies in the hub's connectivity tests. The AdvanceStack provides IP, 100Base-T, and Link-level test between the

hub and the clients on the network.

The nicest feature in AdvanceStack is its port-intrusion control. You can restrict who is allowed onto a particular port by restricting the client's Media Access Control (MAC) address. If you've ever had wandering laptop users who aren't shy about plugging into any port on your network, this can restrict those rogues.

***Hewlett-Packard Co., Workgroup Networks Division, Santa Clara, Calif.; (800) 533-1333; fax: (800) 333-1917; <http://www.hp.com>; AdvanceStack Hub-12TX: \$1,149; Hub-12TXM: \$2,299.**

100BASE-T HUB 3Com SuperStack II Hub 100 Management Unit

The next version of 3Com's SuperStack II management unit has its share of quirks but offers stable features for its customers. However, rivals such as HP offer more niceties with their 100Base-T hub. For example, I definitely missed having a user-friendly, front-end interface such as HP's AdvanceStack Assistant.

3Com had some initial problems with its first iteration of these boxes but has fixed them since the product's release. The most obvi-

ous occurred when I began installing the expansion connectors from the management unit to the Hub 100. The cables that shipped with our version were short and rigid and could not easily bend.



FOUR RMON GROUPS are supported by 3Com's SuperStack II Hub, but RMON 2 is not yet supported.

thick expansion cables scream inelegance; they ended up dislocating the connector sockets when we installed them. 3Com has corrected this problem and is sending out ribbon cables to replace the steel-encased cables.

The common look and feel sought by 3Com's development teams show through in these products. Each looks the same except that the management hub has no ports. This dedicates the unit to management of the repeater hubs in the stack, which most likely adds to its performance and statistics collecting. However, we longed for a couple of ports on this unit such

as the ones on HP's AdvanceStack Hub-12TXM.

This release boasts increased RMON support to four groups. The statistics, alarms, events, and history groups are represented and can be tracked within the management console interface. But the product lacks RMON 2 support.

Port management is strong in this version. Almost everything you could want to control on each port is available. Sadly, manual MAC-address disabling port is unavailable. Instead,

the hub assumes the first MAC to use the port is the authorized machine, which could be a problem if you move a user and forget to disable this feature on the port.

3Com also lacked any legacy support for 10Base-T connections on its Hub 100. We missed this capability but realize that most sites would accommodate legacy clients with a 10/100 solution.

***3Com Corp., Santa Clara, Calif.; (800) 638-3266; <http://www.3com.com>; SuperStack II Hub 100 Management Unit: \$1,495; SuperStack II Hub 100: \$1,665.**

—Stuart McClure

LOOSE CABLES • TEST CENTER

It is amazing what fits on a floppy disk; puzzling over the year-32767 problem

QNX SOFTWARE may have kicked off the network-appliance market with its Voyager technology and economical real-time Posix OS, QNX. According to the company, QNX can scale from embedded OSes to supercomputers juggling hundreds of processors.

But what caught our eye was the QNX network-appliance development kit (download a demonstration at <http://www.qnx.com>). With it we were able to create a single boot floppy containing a QNX GUI, the company's Voyager browser, a full Point to Point Protocol connection, and a Web server.

As the popular browsers boast, it's great to see somebody working leaner and smarter to advance Net access. (Did we mention that all

of this fits on a single diskette?) For now, the development kit is a curiosity (you still have to boot a PC with this floppy) but it could kindle a network-appliance fire. Imagine a computer with no hard disk and a footprint-sized footprint attached to a slim, 14-inch LCD. Plug in a phone line, pop in the floppy, and you're live.

Grandma, meet the Web.

—D.S.

Guerrilla marketing

On a recent visit to <http://www.microsoft.com>, Netscape Communicator 4.02 blew up like eggs in a microwave. (The site is as slow as sap, by the way.) None of the browsers seem stable these days, but this error message caught our attention (see screen shot).

Not that our friends in Redmond would engage in such shenanigans, but this is one way to get people to use Internet Explorer. —B.T.

I was dreaming when I wrote this

With a president so gung-ho about technology that he invites frontier-software vendors to a Rose Garden barbecue, it's good to remember that computers are as fallible as the humans who make them.

This point has struck home several times

during our Test Center Analysis of year-2000 problems and solutions. (Look for Part III, on the year-2000 problem on the network, in our Oct. 27 issue.)

Conventional wisdom says that the programmers who dreamed up soon-to-be insufficient date schemes back in the '50s and '60s did so because they never assumed their programs would still be used when Pope Gregory's odometer rolled over.

—D.S.



HERE'S ONE WAY Microsoft gets users to drop Netscape Communicator in favor of Internet Explorer.

Of course, not only do we still use those old programs, they will be more critical than ever when Dick Clark counts it down on Dec. 31, 1999. Given the year-2000 trouble everyone is now having, we never expected that today's software would have built-in expiration dates. But a lot of it does, including Lotus Notes 4.5's "groupware-over-oops-out-of-time" year-32767 limit. Of course, we'll be taking the dirt nap by then, but somebody is sure to be around.

Dick Clark, for instance.

—J.C.

From the desk of Loose Cables

We've recently been kicking the tires of Notes 4.5's calendaring and scheduling feature, seeing if it should replace our hodge-podge of sign-up sheets. More on our groupware grappling next week, but now we want to share a Notes Mail quirk that's sending the wrong message to some of our friends outside the lab.

Notes Mail offers about 30 letterhead tabs for newly created messages. The default setting is a no-nonsense "From the desk of," look, but there are also "Buck Rogers" and "Pony Express" icons. The problem occurs when we send messages to anyone not on our Notes Mail network. After a message passes through the Net mail-grinder, the icons are reduced to a page of alphanumeric hash.

We've had several colleagues ask why we're sending them PCX files with the final draft of a test plan. We discovered the plain-text setting, but not until after someone we were trying to impress put us on the spot by asking, "Is this Brad Pitt in his birthday suit?" —C.B.

This week's Loose Cables was written by Chip Brookshaw, Julia Carreon, Dan Seane, and Brooks Talley. Do you prefer Buck Rogers or Pony Express? Let us know at loose_cables@infoworld.com.

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AGREEMENTS

MCI Systemhouse, MCI's systems integration, outsourcing, and technology training arm, has agreed to bundle training content with Centra Software's Web-based application. Centra's Java-based Symposium is an enterprise-level application that delivers and manages live interactive group learning and collaboration over corporate intranets and the Internet. MCI will customize its technology training content for delivery in Symposium's live, online environment and resell it to end-users. Delivery is slated for late this year. MCI Systemhouse: (800) 456-3059; <http://www.systemhouse.mci.com>.

AMATI COMMUNICATIONS announced a licensing agreement with ANALOG DEVICES for patents for ANSI-compliant Discrete Multi-Tone (DMT) technology used in Asymmetric Digital Subscriber Line (ADSL) services. Amati's DMT technology uses multicarrier modulation to move signals as fast as 8Mbps over existing telephone lines. Analog Devices will license patents to support further development of ADSL chip sets. Amati Communications Corp.: <http://www.amati.com>. Analog Devices Inc.: <http://www.analog.com>.

SHIPPING
HOMEGATE recently rolled out the newest version of its global roaming remote-access software, The Gate, Version 1.1, with added Internet phone and fax capabilities. The free dial-up software will be integrated with Internet Phone Lite and HomeGate's new FaxGate software to allow users to use their laptops as minicomputer centers from anywhere in the world via an alliance with IPass. IPass has developed a coalition of Internet service providers that have agreed to offer roaming users dial-up access via their point of presence. HomeGate Corp.: <http://www.homegate.com>.

TELECOM WORLD

Voice/data communications in the Enterprise

Telecom, Internet meet head on

■ International Telecommunications Union hosts first-ever Telecom Interactive

By Jeanette Borzo

A CLASSIC CONFLICT between old and new played out in Geneva last week, as the youthful Internet industry dabbled in the granddaddy world of telecommunications organizations at the International Telecommunications Union (ITU) trade show, Telecom Interactive 97.

The show is new, born of the telecom shows the ITU has put on regularly in Geneva. But this show was meant to play host to a relatively new subset of the telecommunications industry: interactive Web types.

It seemed that the new idea may have come a bit before its time, however, as the show presented a dearth of computer vendors and was hallmarked by absences: no-shows ranging from Oracle CEO Larry Ellison to Yuri Luzhkov, the mayor of Moscow.

Overall, there was no mistaking the old vs. new conflict, all the way from the report issued on the show's first day (see related article, right) to the veiled barbs tossed between panel discussion members at the show's different conferences.

When it came to the issue of stan-

dardization and regulation in the industry, for example, the contrasts were clear, with comparisons made between telcos' traditional approach of careful standard-setting procedures and Internet participants' more free-form approach.

Organizations that have set standards for the telecommunications industry may have been removed from users in the past, argued Theodore Irmner, director of the telecommunications standardization bureau at the ITU, but the gap is narrowing.

"There are cases where standards organizations have been late, but we are getting faster," Irmner said.

Without question, the mixing of the Internet community with the telecommunications industry — with its multilevel layers of regulations and standards — will need to be approached with caution, representatives said.

"We at the ITU have not been asked to regulate [Internet] content but to come forward with guidelines about what content should be allowed," Irmner said. "We have not

CHALLENGE AND OPPORTUNITY

The Internet represents the "biggest single challenge" to the telecommunications sector, according to a report the International Telecommunications Union (ITU) released last week on the relationship between the Internet and the telecommunications industry.

However, the Internet also offers the telecom industry its biggest opportunity, according to the report released in Geneva at the opening of the ITU's Telecom Interactive 97 conference.

In *Challenges to the Network: Telecommunications and the Internet*, the ITU outlined the similarities between the offerings of Internet services and of public telecommunications services, saying they are becoming increasingly similar, both with interactive, digital, real-time information services. Both are also using the same public telephone networks, with

a similar mix of copper, fiber optic, and satellite connections.

However, the areas where the Internet and public telephone system differ — protocols, pricing structures, and regulatory framework — may give the Internet the upper hand, the report said. For example, because Internet telephony makes possible long-distance calls for the cost of a local call, it threatens the economic foundation and profitability of the telecom sector, according to the ITU.

Although the Internet poses this challenge to traditional phone business, it also offers the "biggest opportunity" in the last years of this century, the ITU said.

The International Telecommunications Union, in Geneva, is at <http://www.itu.ch/>.

— Joy Dietrich, IDG News Service (an InfoWorld affiliate), Paris

come forward because it is an extremely hot potato."

At least one note of interactive harmony was acknowledged, as both sides advocated moderation and balance.

"Innovation and competition should not prevent us from standardization," said Karl Rosenbrock, communications director at European Telecommunications Standards Institute, in Sophia Antipolis, France. "And standardization should not prevent us from innovation."

This emphasis on innovation and fulfilling user needs is what Internet standardization has always been about, according to many representatives from the Internet camp.

"Internet Engineering Task Force [IETF] standardization comes from the perspective of a community of people with needs who meet together," said Fred Baker, chairman of the IETF and senior software engineer at Cisco Systems, in San Jose, Calif. "In the Internet community, the users are involved in the standardization process. There is no one vendor that provides everything or one person who does it all."

Although Internet standards may have been set by Internet users — rather than a regulatory organization — today's group of Internet users may not have its needs met by

those standards, argued Moustafa Sherif, a distinguished member of the technical staff at AT&T Laboratories, in Sophia Antipolis.

"The Internet was started by users who were developers," Sherif said. "If the needs of this small group is not a representation of the needs of a large group, then there is a problem."

"Most [Internet pioneers] are from the U.S. research community," and therefore did not take into consideration a variety of concerns from other demographic groups around the globe when establishing ad hoc Internet standards — such as supporting character sets other than ASCII, Sherif said.

Also, questions of Internet access are also critical to the founding group of Internet users, as they are in some places outside of the United States, Sherif added.

"Current [Internet access] charges are based on capacity and not on usage, with charges being subsidized," Sherif said. "It's easy to offer [Internet access] if you already have the infrastructure."

The International Telecommunications Union, in Geneva, is at <http://www.itu.ch/>.

Jeanette Borzo is the Paris bureau chief for the IDG News Service, an InfoWorld affiliate.

REGULATORY ROUNDUP

Here are a couple of regulatory news bites



BRUSSELS, BELGIUM The European Commission has formally protested to the U.S. government that U.S. plans for satellite telecommunications services law discriminate against non-U.S. companies. The Commission is objecting to planned legislation for implementing the international World Trade Organization (WTO) agreement covering basic telecom services, it said in a statement. The Commission is particularly concerned that the United States could use a reciprocity test to deny foreign operators the ability to sell direct-to-home services and digital satellite services.

"These provisions could take the shape of an exemption to the WTO's most-favored-nation [MFN] clause that would be incompatible with the basic agreement," said a Commission official who asked not to be named.

The MFN clause means any advantage granted one trading partner is granted to all others.



WASHINGTON The Federal Communications Commission is seeking comment on the best way to distribute funds to schools and hospitals as part of the Universal Service Plan to ensure that they have access to advanced services.

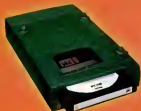
The FCC is planning to issue funds on a "first come, first served" basis, but it is seeking comment on how to implement this and whether it needs a mechanism for prioritizing requests if demand exceeds the available funds.

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NTT unit targets global market

■ Subsidiary to provide circuits for international telcos

By Rob Guth

NIPPON TELEGRAPH and Telephone (NTT) next year will take an early step toward entering the global telecommunications market.

The Japanese telecom giant will open a subsidiary to provide leased international circuits to multinationals and other telecom carriers, a company representative said last week.

NTT has applied to Japan's Ministry of Posts and Telecommunications for permission to establish the subsidiary, which will be called NTT Worldwide Network Corp., the representative added.

The subsidiary, to be launched in April 1998, will lease high-speed international lines to telecommunications carriers and multinationals with global networks, the representative said.

► NTT Worldwide Telecommunications, another NTT subsidiary, will lease its lines from NTT Worldwide Network.

The announcement comes in response to market deregulation in Japan that, as of June, allows NTT to offer international services for the first time in its history.

Over the past six months, the telecom provider has steadily laid a foundation for building an international business and initially will target Japanese multinationals. The company also will focus on the Asia-Pacific region, according to NTT officials.

As such, many of NTT Worldwide Network's early services will be heavily weighted toward Asia. The company first will offer services between Japan and China, Hong Kong, Taiwan, South Korea, Singapore, the Philippines, Thailand, Malaysia, the United States, and the United Kingdom. The following year, the company will begin services to Indone-

sia, the NTT representative said.

The subsidiary, to be based in Tokyo, will be capitalized at \$170 million and will operate separately from its parent company, handling its own financial statements and offering NTT the same interconnection rights as other carriers, the representative added.

Nippon Telegraph and Telephone Corp. in Tokyo, can be reached at <http://www.ntt.co.jp/>.

Rob Guth is a Tokyo correspondent for the IDG News Service, an InfoWorld affiliate.

KDD RECEIVES FCC OK TO PROVIDE U.S. SERVICES

THE FEDERAL Communications Commission will let a unit of Kokusai Denshin Denwa (KDD) begin offering telecommunications services in the United States, a KDD representative said.

The FCC has approved applications submitted by KDD America that will let the company offer connections between the United States and major regions of the world, the representative said.

Although the company has not yet received approval to open circuits from the United States to France, Belgium, Hong Kong, Russia, and Mongolia, it expects the FCC to grant permission within weeks, the representative said.

KDD's approval follows the decision last week by the FCC to move the applications of KDD and Japan's semiprivatized Nippon Telegraph and Telephone (NTT) back into the mainstream of the commission's approval process.

As part of a trade disagreement with Japan, the applications were removed from a streamlined approval process earlier this year at the behest of the office of the U.S. Trade Representative.

NTT's application likely will not be approved until ongoing talks over the company's foreign procurement practices are completed this month, according to observers.

Kokusai Denshin Denwa, in Tokyo, is at <http://www.kdd.co.jp/>.

— Rob Guth, IDG News Service (an InfoWorld affiliate), Tokyo

VDSL stays in ADSL's shadow

By Joanne Taaffe

AT THE International Telecommunications Union's Telecom Interactive show in Geneva last week, a walk around the semiermy aisles on the exhibition floor revealed one acronym cropping up again and again: ADSL.

And the attention came not only on the stands of Asymmetrical Digital Subscriber Line (ADSL) vendors such as Alcatel SA, Paragrain, or Paradyne. Operators including France Telecom, Telecom Italia, and Telecom Malaysia were showing off the potential of the technology.

However, all the attention masked the fact that ADSL is just one member of the xDSL family, a technology that boosts the speeds at which data travels from the operator's switch to the user's home or office across regular copper wires.

Indeed, ADSL, which can transmit data at speeds as fast as 8Mbps downstream, is not the fastest manifestation of xDSL. Another form of xDSL operators discussed at the show, Very-high-bit-rate Digital Subscriber Line (VDSL), can transmit data at 51Mbps downstream.

But in order to reach its maximum speed limit without picking up noise interference en route, VDSL must run across copper wire of only 200 meters in length, com-

pared to the 2-kilometer maximum for ADSL. With both forms of xDSL, the longer the copper wire gets, the slower the transmission speed becomes.

This restricts VDSL to densely populated urban areas, and VDSL costs more than ADSL. This means many operators are sticking to trials of ADSL, which received a thumbs-up for ease of installation.

Even VDSL vendors are not holding much hope for sales of the technology any time soon.

"VDSL is for the future," an Alcatel representative said.

Telecom Italia also is plowing money into ADSL and VDSL research through the research unit Italtel SpA, which it owns jointly with Siemens. Italtel also said that although Telecom Italia is planning trials for ADSL, VDSL will not come into its own for at least another three years, once telcos have gained experience with the less financially and technically daunting ADSL.

Telecom Italia SpA, in Rome, can be reached at <http://www.telecom.it>.

Joanne Taaffe is a Paris correspondent for the IDG News Service, an InfoWorld affiliate.

► Swiss Telecom is trying out High-bit-rate Digital Subscriber Line for video on demand.



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LCD Touchscreen Diagnostics	Not Available	Standard	Not Available
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1	ALR*	Revolution™ 6X6 c/s	10,665.53	\$48.10	6/Pentium Pro/200MHz
1	Unisys*	Aquanta™ HS/6 c/s	10,665.53	\$53.43	6/Pentium Pro/200MHz
2	Unisys*	Aquanta™ HS/6 c/s	9,223.43	\$52.59	4/Pentium Pro/200MHz
3	HP*	NetServer™ LX Pro c/s	9,198.37	\$49.62	4/Pentium Pro/200MHz
4	NCR*	WorldMark™ 4300S c/s	9,116.00	\$85.45	4/Pentium Pro/200MHz
5	Compaq*	ProLiant™ 6000 6/200 Model 1X c/s	9,028.67	\$78.17	4/Pentium Pro/200MHz
6	Compaq*	ProLiant™ 5000 6/200 Model 2 c/s	8,311.43	\$95.37	4/Pentium Pro/200MHz
7	Digital*	Prioris™ ZX 6200MP	8,145.60	\$48.67	4/Pentium Pro/200MHz
8	Compaq*	ProLiant™ 5000 6/200 Model 1X c/s	8,070.00	\$57.66	4/Pentium Pro/200MHz

Product comparison chart at left is not representative of the machines used in these benchmarks. * Data current on 7/25/97.
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Vendors collaborate to push CDMA for Internet access

By Marc Ferranti

3Com, QUALCOMM, and Unwired Planet last week announced an alliance to promote CDMA wireless technology as an attractive, alternative way to connect to the Internet.

The companies announced they are using quick net connect technology, which extends the capabilities of the standard IS-99 Code Division Multiple Access (CDMA) circuit switched data protocol, as a means of letting digital Internet connections be established in 3 seconds to 6 seconds. The technology also provides for connection speeds comparable to packet-data-based services, officials said.

Quick net connect was developed by 3Com and digital phone maker Qualcomm. They have been working together and with other manufacturers to develop CDMA standards.

► Qualcomm's CDMA implementation uses remote concentration technology from 3Com.

The quick net connect technology has the potential to offer speeds faster than those most people are accustomed to when using modems and land-line telephones and will be available first to users of Unwired Planet's UP.Browser software on Qualcomm

CDMA telephones.

However, other wireless carriers also plan to use the quick net connect technology, officials at the three companies said. They did not specify which other carriers had plans for the new CDMA technology.

3Com Corp., in Santa Clara, Calif., can be reached at <http://www.3com.com>. Qualcomm Inc., in San Diego, can be reached at <http://www.qualcomm.com/>. Unwired Planet Inc., in Redwood Shores, Calif., can be reached at <http://www.uplanet.com/>.

Marc Ferranti is New York bureau chief for the IDG News Service, an InfoWorld affiliate.

Alcatel to develop multifaceted screen telephone

THE TELECOMMUNICATIONS group of Alcatel Alsthom announced its distribution and availability plans for its Internet Screen Phone, previously called the Webphone.

Equipped with a touchscreen, the telephone acts as a Web-surfing device, an answering machine, and a fax machine. The phone has a 33.6Kbps modem, with ISDN modems available for the European market.

Asymmetric Digital Subscriber Line modems will be offered once the price of the technology comes down, said Patrick Liot, Alcatel Telecom's vice president of the terminals division, at a press conference at the Telecom Interactive trade show in Geneva last week.

The phone is also equipped with a keyboard and a smart-card reader for Internet-commerce applications.

Targeted at consumers and businesses, the Internet Screen Phone is Java-based and supports all Internet protocols, Liot said.

A dedicated key on the retractable keyboard tray connects the user directly to the Internet, and another accesses all messages — whether they be in the form of a voice mail, e-mail, or fax.

Alcatel expects the device to sell for \$500, except when it is offered as part of a subsidized service from a telecommunications provider, where it is expected to sell for less than \$300. It will be available in mass quantities in the second quarter of 1998.

Alcatel is developing the Internet Screen Phone in conjunction with Sun Microsystems and Andersen Consulting.

Alcatel Telecom, in Paris, can be reached at <http://www.alcatel.com/>.

— Jeanette Borzo, IDG News Service (an InfoWorld affiliate), Paris

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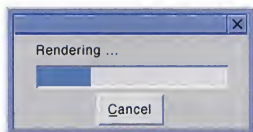
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PIPELINE

ANNOUNCED

VeriSign has announced the release of VeriSign Onsite, a product which allows companies to issue digital certificates to employees and extranet customers that contain company or individual verification for Web communications and transactions. Back-end certificate support will be provided by VeriSign. Pricing for Onsite begins at \$4,995 for 1,000 certificates and will be available in October. VeriSign Inc. (650) 961-7500; <http://www.verisign.com>.

IBM and FISHER TECHNOLOGY GROUP have formed a cooperative marketing agreement to add Fisher's CornerStone and ProcureNet to IBM's portfolio of Internet-commerce systems. CornerStone creates online catalogs, customer contract pricing, secure electronic ordering, and management reporting abilities. ProcureNet is an online mall for wholesale distributors and manufacturers. Fisher will also provide support for IBM's Net.Commerce in both products. Fisher Technology Group; <http://www.ftchg.com>. IBM; <http://www.ibm.com>.

NCIPHER has released its nFast accelerators for processing cryptographic keys for commerce and transaction servers. nFast is a standalone box connected to a SCSI port that accelerates secure transactions through rapid processing of encryption keys. nFast is available now at prices ranging from \$2,995 to \$11,000, depending on speed requirements. NCipher; <http://www.ndpher.com>.

PICTORIUS announced a Web-authoring tool that will allow novice designers to create and maintain a Web site. The iNetSolo publishing tool features a WYSIWYG site and page editor, with drag-and-drop HTML elements, and the Solo Server, a Web-application server. iNetSolo will ship at the end of the month, priced at \$249. Pictorius Inc.; <http://www.pictorius.com>.

INTERNET & I-COMMERCE

Actra pumps up PublishingXpert

■ Upgrade will add personalized content delivery and secure payment capabilities

By Dana Gardner

ACTRA, the joint venture of Netscape and GE Information Services, later this month will deliver a wholly revised upgrade to the PublishingXpert Web site server and add new platforms to the CommerceXpert family of business-to-business servers.

PublishingXpert 2.0 is a multi-tiered, distributed application developed by Actra using Netscape's Open Network Environment platform, which exploits technologies such as Java, JavaScript, Dynamic

HTML, Lightweight Directory Access Protocol, and CORBA.

Used by content providers such as PCWorld Online and The New York Times, the upgrade offers personalized content delivery, improved content management, secure payment capabilities, subscription and billing services, advanced searching, and centralized administration.

"This marks the first time we have charged a subscription fee for access to our content," said Adam Block, product development director for PCWorld Online, in San

Francisco. "PublishingXpert's multi-hosting capability lets us serve a variety of unique publications based on the same infrastructure, using common billing, staging, and customer service components," Block said.

PublishingXpert 2.0 for Sun Solaris is scheduled to ship Sept. 26, with SGI IRIX and Microsoft Windows NT versions scheduled by year's end and in next year's first quarter, respectively.

Pricing for PublishingXpert begins at \$75,000, which includes Netscape Enterprise Server and LiveWire Pro. Oracle Enterprise Server is the supported database. A Content Management Server is available for \$20,000.

Other enhancements to the CommerceXpert family include ECXpert, which adds a Web interface to EDI-type systems. A Windows NT version will ship Sept. 30 with prices starting at \$50,000. SellerXpert, an online catalog system for Sun Solaris will ship Sept. 30 priced at \$195,000; a Windows NT version is due before April.

Actra also introduced AgentXpert, a CORBA-based agent framework for personalization and one-to-one marketing.

Actra Business Systems is at <http://www.actracorp.com>, Netscape Communications Corp., in Mountain View, Calif., is at (650) 937-2555 or <http://home.netscape.com/>.

Java Development Kit

JavaSoft alters JDK schedule

By Niall McKay

JAVASOFT's next generation Java Development Kit, JDK 1.2, will go into beta release next month, according to company officials.

Version 1.2 will include enhancements to the JDK's APIs but will be built on top of the current Java Virtual Machine (JVM).

Early next year, the company expects to beta test JDK 2.x. This upgrade release will include Version 1.2 APIs and a new JVM, designed to run at speeds approaching that of C++ and based on the company's HotSpot dynamic compilation technology.

"The JVM is invisible to the developers," said Eric Chu, JDK JavaSoft product manager. "That way they can get the benefits of increased speed without having to re-engineer their software."

The new APIs, code-named Playground, will include the much-talked-about Swing Set GUI components for the Java Foundation Classes and the Sandbox security enhancements.

Furthermore, Version 1.2 promises to decrease the memory overhead required to run the JDK, according to Chu.

Meanwhile, final release of Version 2.0 has been postponed from the end of this year until the second quarter of 1998, after the newly formed Java Porting and Tuning Center has ironed out any bugs in

the system and ported it onto all major platforms.

"We have decided to push back the final version of the JDK because we want to release it on all major platforms concurrently," said George Padlini, JavaSoft director of corporate marketing. "In April, we introduced Version 1.1, and it was at least six months before it became available on all major platforms. We want to make sure that doesn't happen again."

Users welcomed JavaSoft's decision to hold the final version of the software until the Java and Porting Center has ported it across all major platforms.

JavaSoft's Java Development Kit (JDK)

Version	Release date
JDK 1.0	First quarter 1996
JDK 1.1	First quarter 1997
JDK 1.2	Second quarter 1998
JDK 2.0	Second quarter 1998

"We prefer fewer but more robust releases of the JDK," said Rajesh Lalwani, president of Intiva, in Cupertino, Calif.

Analysts also applauded JavaSoft's strategy of holding the general release of the product.

"Version 1.1 took at least three months of debugging," said Evan Quinn, a senior analyst at International Data Corp., in Mountain View, Calif. "I think JavaSoft is well advised to make sure that the next major release of the JDK is very

► JAVASOFT page 68

Microsoft picks up I-commerce support

INEX AND PAYLINX announced support for Microsoft Site Server, and CyberCash and TanData announced their support for Microsoft Commerce Server, strengthening Microsoft's position in the Internet-commerce market.

"Microsoft is very strong in this market," said Chris Stevens, an Internet-commerce analyst at the Aberdeen Group, in Boston.

Inex has targeted its Commerce Court for Site Server at ISPs, Web-hosting companies, and small to midsize businesses for creating and maintaining Web stores on the Internet. PayLinx for Site Server allows access to the PayLinx portfolio of enterprise payment services to accept diverse payment types.

CyberCash released an upgrade to CashRegister for Microsoft Commerce Server 2.0, which enables merchants to accept credit card payments over the Internet. TanData released its Prologics Merchant add-in for more flexibility in the shipping phase of the purchase process.

"A customer can get a custom solution without programming," said Jonathan Weinstein, Microsoft product manager for Internet commerce. "These partners are helping to make that possible."

Microsoft Corp., in Redmond, Wash., can be reached at <http://www.microsoft.com>.

— Matthew Nelson

THE WEB HOTLIST

Web sites worth checking out

- Pandesci** <http://www.pandesci.com>
Pandesci, a venture between Intel and SAP Pandesci, offers information on its Internet-commerce solutions. Get information on automating business processes by implementing real-time order processing, accounting, and financial reporting.
- GTE Internetworking** <http://www.internetworking.gte.com>
Telecommunications giant GTE reworks the resources of recently acquired BBN to provide an informative and useful site. Visit the Get Smart area to browse a glossary of Internet lingo and read a feature on GTE's Network Operations Center.
- Unwired Planet** <http://www.unwiredplanet.com>
Wireless Internet-access products and services are the focus of Unwired Planet's well-designed site. Learn about the Handheld Device Markup Language specification or get information on the Unwired Planet Developer Program.

Send URL suggestions to jim_batteray@infoworld.com

StoryServer drops page metaphor

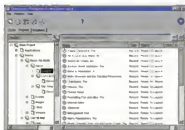
By Jackie Poole

VIGNETTE IS DELIVERING StoryServer 3.0, a Web-site development and Internet-commerce application in a multimedia-rich, interactive environment where end-users are delivered personalized commerce information.

Vignette has moved away from the static nature of "pages" and applied an object-oriented content component model, according to Jeff Erramoupe, Vignette's vice president of marketing.

"The components encapsulate the various functional elements, which are then reusable, making it easier to change design without adding development time," Erramoupe said.

The separation of content and design lets the system dynamically pull together the fragmented pieces, which allows content authors to focus on supplying information, business managers to synchronize it with the business goals, and the designers and Webmasters



STORYSERVER's Java-based client interface enables remote authoring via a standard Web browser.

to focus on the technical side.

"The goal of natural browsing is to cut down on user frustration and encourage loyalty," said Ross Garber, Vignette's president and chief executive officer.

As a relationship with a user matures, rules-based systems may become more appropriate in one-to-one personalization, which makes certain assumptions when serving up content, officials said.

Analysts generally liked the Vignette system.

"Vignette is mirroring our notion of intelligent interaction, which provides rich content and enables users to move into transactions based on the content," said Donald DePalma, senior analyst at Forrester Research, in Cambridge, Mass.

"They still have to address collaborative communication, or the creation of a community,

where people of like minds can come together and interact online," DePalma said.

StoryServer 3.0 for Sun Solaris, Windows 95, and Windows NT clients and Sun Solaris server will ship at month's end. StoryServer 3.0 for Windows NT Server and Macintosh clients will ship in December. Pricing for the development license will start at \$20,000 and \$40,000 for the Live-site license.

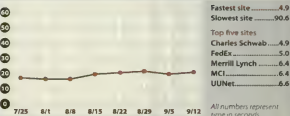
Vignette Corp., in Austin, Texas, is at <http://www.vignette.com>.

KEYNOTE BUSINESS 40

Internet Performance Index

Week ending Sept. 12

20.65



The index measures the performance of 40 business-related Web sites. The numbers represent the average time it takes to download a home page. The lower the number, the better the responsiveness. For more information, choose the InfoWorld Print button on InfoWorld Electronic at <http://www.infoworld.com>.

SOURCE: KEYNOTE SYSTEMS (<http://www.keynote.com>)

JavaSoft

Continued from page 67

solid before it is released."

Some users are not so excited about JavaSoft's HotSpot technology and believe that the just-in-time (JIT) compilers from Borland and Symantec do an adequate job of speeding up the JDKs.

"The sort of speeds we are get-

ting out of the current JDK with the Symantec JIT compiler is good enough for the moment," said Jim Kleckner, chief technical officer at Cats Software, a risk-management software vendor in Palo Alto, Calif.

"Quite frankly, I was a little skeptical of JavaSoft's claims that HotSpot would make Java as fast as C++."

JavaSoft, a division of Sun Microsystems Inc., in Mountain View, Calif., can be reached at (408) 343-1400 or <http://www.javasoft.com>.

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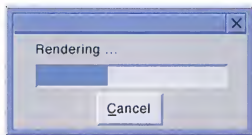
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www.zephyrcorp.com

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**How long have you been waiting
for a faster PC Workstation?**

Java in Cryptolope eases data management

By Ed Scannell

IBM's CRYPTOLOPE LIVE technology announced earlier this month at the Internet Commerce Expo in Los Angeles could serve as an important building block for helping corporate users manage their mission-critical

data over open networks.

The enhanced technology combines the capabilities of the previous iteration of Cryptolope, including multilevel security, access, and usage controls, with the inherent cross-platform capabilities of Java.

The combination, company officials said, lets users bind a Java applet or application to any form of electronic content and to securely deliver it to any desktop on a network. Cryptolope Live also lets developers create Java-based informational objects or Java ap-

plets married to several forms of content.

"The idea Cryptolope Live is centered around is being able to move information around and enabling end-users to use that information in a way the developer wants them to use it," said Jeff Kay, Cryptolope chief architect at IBM's Internet division.

Using Cryptolope Live, developers and users can take any sort of information, including HTML content, text, sound, and video, and package it in a Cryptolope object container, Kay said. The container can be surrounded with applications logic or business rules that define the information's use and then be sent to end-users. A Cryptolope player runs on the client and executes the objects.

Analysts agreed Cryptolope Live is a good move for IBM's Internet-commerce strategy.

"By going to Java with Cryptolope, they have eliminated the need to download or have specific software on the client," said David Marshak, vice president and director of best practices in e-commerce at the Patricia Seybold Group, in Boston.

Availability and pricing will be announced in the fourth quarter.

IBM, in Armonk, N.Y., can be reached at <http://www.ibm.com>.

IBM TO GIVE USERS CONTROL OF THEIR DIGITAL CERTIFICATES

IBM PLANS TO OFFER enterprises a system that will enable enterprises to issue and verify their own digital certificates. The system, IBM World Registry, will go live in October.

IBM announced the registry for Secure Electronic Transactions (SET) as part of its CommercePoint payment system. CommercePoint provides the technology to issue and manage the encrypted digital certificates that underlie SET transactions, according to Mark Greene, vice president of Internet Payments and Certification at IBM.

"IBM World Registry equals Entrust, as the core certificate technology, plus Telstra X.509 technology, plus industrial strength administration," Greene said. "Our model is a little different from other players; we offer our service to our customers to certify their customers."

IBM is targeting Fortune 1000 companies, financial institutions, and governments, and it has already signed the Australian government as a customer, according to Greene.

Some analysts believe that IBM might be facing an uphill battle.

"Banks err on the side of caution when it comes to encryption and certificate authorities," said Chris Stevens, electronic-commerce analyst at the Aberdeen Group, in Boston, warning that financial institutions may want to stay with current trusted verification companies rather than start their own.

Pricing for the registry was not available. IBM, in Armonk, N.Y., can be reached at (914) 765-1900 or <http://www.ibm.com>.

— Matthew Nelson

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The Total Cost of Ownership (TCO) Challenge

Monday, Nov. 17, 12:30-1:45
Moderated by Text Center Director
Charlotte Ziems



With all the talk about NCS, NetPCs, and thin clients, much focus has been put on the costs of deploying technology. This session includes discussions about the competing, sometimes confusing, TCO models and ways to customize them for your specific business needs.



Reach Out and Leverage Your Customers

Tuesday, Nov. 18, 2:15-3:30
Moderated by Columnist
Mark Tobbe



The ubiquity of the Web client means companies of all sizes can employ existing databases to develop even more personal relationships with their customers. This session will include techniques and technologies that will allow you to get more from your marketing and sales dollars while creating stronger customer relationships.

Join the InfoWorld Team at Comdex

For a special program, "Technology Promises vs. Business Realities"



Avoiding Convergence Chaos

Tuesday, Nov. 18, 12:30-1:45
Moderated by Executive News Editor
Michael Vizard



Whether it's videoconferencing, computer-telephony integration, universal messaging types, or audio and video on demand on the Web, the potential for convergence chaos is real. This panel will provide insight on how to stay ahead of the fast-moving convergence trend and how to leverage it into an IT opportunity.

It's easy to look into the crystal ball and predict how the Net will affect business in the next millennium. What's hard is figuring out where it's headed in the next business cycle.



Taking the Net to the Next Level

Monday, Nov. 17, 2:15-3:30
Moderated by Editor in Chief
Sandy Reed



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**INFO
WORLD**

- QuickMail Office 1.0.....748
- Hit List Professional 3.5.....748
- BeanBag, alpha.....740
- Inside the Firewall, by Dave Taylor.....740

LOW-COST E-MAIL

Small to midsize offices may find that implementing enterprise-class e-mail solutions, such as Microsoft Exchange or Lotus Notes, costs more in administration time and training than they can afford. CE Software's QuickMail Office 1.0 offers a client and server solution for providing POP3 e-mail. It's easy to use and cost-effective, but it does lack the flexibility and standards support of higher-end products. See our review on page 748.

I-COMMERCE

For the latest on Internet-commerce products and issues, don't miss InfoWorld Electric's I-Commerce section (<http://www.infoworld.com>) where you can read features, news analyses, case studies, and product reviews relating to I-Commerce. The next Focus on I-Commerce section will appear on these pages in the Oct. 6 issue of InfoWorld.

HOW WE REVIEW

Intranet World reviews examine new products, focusing on their usability, features, and suitability to task. Our expert reviewers rate shipping products on a scale of cold to hot. The authors do not employ the extensive analyses used in Comparisons, so their conclusions may be different.

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INTRANET WORLD

The Internet in the Enterprise

Web-server software

WebSite too big for its britches

By David Strom WebSite used to be my favorite Web server: The last version had the best documentation and one of the best installation routines. But time has taken its toll on the product, and it has fallen into feature creep with Version 2.0.

Although I like many of the new features, WebSite has become far too complex for its own good.

Part of the problem is that O'Reilly & Associates' WebSite Professional 2.0 has expanded into Internet commerce, serving dynamic content and Java servlets. But it is also caught between Web servers from Microsoft and Netscape. It has to support features found in both, such as the Netscape protocols for Web-based file uploads and Microsoft's Active Server Pages. That spells trouble at the expense of simplicity of operations.

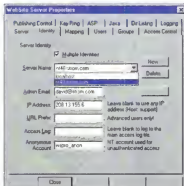
Complicated documentation

The loss of simplicity is especially noticeable in WebSite's documentation. I have gone back to my Version 1.1 manuals many times over the past year; they are among the best places anyone could learn about Web server operations, even if you need to know about another Web server. But because of Version 2.0's additions, the manuals cover a lot more ground and are geared for a more experienced audience.

New highlights of the manuals are explanations of HTML 3.2 features, Secure Sockets Layer 3, and a good overview of how dynamic content is added to your Web. Indeed, these touch on the superior features of the product as well.

Replacements, added features

So what has been added in this version? First, several third-party products are bundled with the server. Allaire's Cold Fusion and Sausage Software's Hot Dog HTML editor have been replaced with Allaire's HomeSite and Inline Internet Systems' iHTML Professional tools. I think the loss of Cold Fusion is a



WebSite offers great support for running multiple Web sites on a single machine.

big one: I am a big fan of Allaire's database language, and O'Reilly's documentation for iHTML isn't as good as that of Cold Fusion.

Another addition is the iHTML Merchant, an entire Web storefront built in the iHTML language. You can easily set up your own store by following the sample store (a condensed version of an O'Reilly bookstore) that comes complete with ad-banner rotation software, a shopping basket, and support for either credit card or CyberCash transactions.

Getting help from the documentation will require some solid knowledge of SQL Server and ODBC and a basic understanding of the iHTML markup tags. It isn't for I-commerce beginners.

Under-the-hood improvements

Other changes have more to do with server internals, such as a complete reworking of its security and certificate apparatus. Now you get a key ring program that keeps track of your server certificates. It is a little bit easier to understand and deal with than the older certificate server in WebSite 1.1.

Version 2.0 also improves upon its previous superior multithreading support. Now you can have multi-

ple Web servers sharing a single IP address, something that earlier versions of WebSite (and current versions of many of its competitors) don't support. WebSite is still the best server for supporting multiple identities: Each server can write its own set of log files, for example.

This new version has substantially improved its Java server-side applications performance by embedding the Java virtual machine inside the server. Previous versions of WebSite used CGI calls to pass Java instructions to the server.

Version 2.0 has taken a few ideas from Microsoft's Web efforts. WebSite works with Windows NT native user security: Once you set up users and groups with Microsoft's User Manager, you can use this structure for access to your Web site as well. WebSite also supports Microsoft's Active Server Pages.

All in all, I think WebSite 2.0 is a bit like seeing your college freshman visit home for the first time: You realize that he or she has grown more sophisticated and not in ways that you necessarily approve.

Yes, there are some terrific features in WebSite 2.0, and, yes, the documentation is still worth the price of admission on its own. But if you have never touched a Web

THE BOTTOM LINE

WebSite Professional 2.0

WebSite Professional is a full-featured Web server bundled with numerous development tools, such as an HTML editor, Perl and Python compilers, and a simple Web storefront creator.

Pros: Very extensible Web server; wide variety of bundled tools to create secure, dynamic sites. **Cons:** Wide array of features not as well documented as with previous versions.

O'Reilly & Associates Inc., Sebastopol, Calif.: (800) 958-9938, (707) 829-0515; fax: (707) 829-0104; <http://www.website.com>; software@oreilly.com

Price: \$799 list; upgrades from previous versions of WebSite and WebSite Professional for \$499 to \$699.

Platforms: Windows 95, Windows NT 4.0, Service Pack 3 or later.

server, I'd recommend looking first at Microsoft's Internet Information Server, Beta 4. It is easier to comprehend and use than WebSite.

David Strom is president of his own consulting company in Port Washington, N.Y. His Internet address is david@strom.com; his Web site is at <http://www.strom.com>.

Web server

Go Webserver packs rich features

By Gess Shankar

ALTHOUGH POSITIONED as an entry-level Web server, Lotus Domino Go Webserver 4.6 packs a robust set of features and runs on many platforms, including OS/2, various flavors of Unix, and even IBM OS/400 (available next year).

Despite the Domino prefix, it is not really part of the Domino family of servers. Rather, it's the latest incarnation of IBM's Internet Connection Secure Server.

The package includes some extras that you won't find in most basic Web server software — a caching proxy server; the Net-Question indexing and retrieval

function; and a content rating system based on the Platform for Internet Content Selection protocol. Java support is also good: In addition to supporting Java Servlets and JavaBeans, JavaSoft's Java Development Kit 1.1 is bundled with the server.

Installing the Domino Go Webserver under Windows NT 4.0 was quick and simple. Once installed, Domino Go can be configured either by directly editing configuration text files or by accessing administration forms through a local or remote browser. There are also several commands that can be directly executed from the command shell.

» 60 page 74D

Windows and Macintosh e-mail suite

QuickMail Office inexpensively delivers POP3 e-mail

By Patrick Marshall

YOU WOULDN'T USE a chain saw to cut kindling. Likewise, if you're a small office relying on Internet mail, it makes little sense to turn to an enterprise product such as Microsoft Exchange or Lotus Notes that would add administrative headaches and deplete a tight budget.

However, QuickMail Office 1.0 from CE Software is designed for small to midsize offices that need an easy-to-administer, inexpensive e-mail system. It doesn't have the power and flexibility of Exchange or Notes or even of its closer competitor QuikComm's Eudora.

But QuickMail does deliver a very reliable Internet-based system at a low cost. A 100-user package costs \$4,000, compared with the \$4,900 client/server bundle on the Eudora client/server bundle.

QuickMail Office is a bundle of CE's QuickMail Pro 1.5 client for Windows and Macintosh and its new QuickMail Pro Server 1.0 for Windows 95 and Windows NT.

Limited client interface

For starters, QuickMail does not offer the strongest client on the market. There are, for example, limited formatting tools, no message threading, and no tabbed naviga-

tion of folders. Instead, everything is dumped into a single window with different headings for folders that you can expand and collapse.

The client's MailManager lets you create and edit rules for handling mail, but, this tool is not particularly flexible. You can designate messages to act upon by specifying a character string in the From, To, and Subject fields, and you can also use Priority and Date Sent as triggers. There are only five actions where you can have a rule trigger: print, forward, reply, file, or delete.

However, QuickMail does have a nice search utility that you can use to search all mail or specified folders. The default search covers only text strings in subject and message body. But if you click on More Choices, you can specify sender or addressee, as well as priority and date sent as search terms.

QuickMail does offer a wide array of 22 forms, and you can add more using the included QM Forms program. Unfortunately, that application was not available in time for me to take a look.

Other key additions in Quick-



QUICKMAIL'S CLIENT SOFTWARE is *spartan, but it does offer an easy-to-use rules feature for hands-off printing, forwarding, replying, filing, and deleting of messages.*

Mail are automatic encoding of enclosures and a MailTicker. Thanks to automatic encoding of enclosures, once you specify in the addressee form what operating system the recipient is using, QuickMail will automatically select the right encoding method for attachments—ensuring that, for example, a Windows user will be able to open files sent from a Mac.

QuickMail's MailTicker monitors mail without having to load QuickMail, and you can specify just how often you want the MailTicker to check for new messages.

Less-than-stellar server

If QuickMail's client is limited, so is its server. QuickMail Pro Server

does not offer the power of Exchange, Notes, or the Net-based Eudora. There's no support for Internet Mail Access Protocol, and security is limited to Automatic Processing Options Protocol. The product does not, for example, support Secure Multipurpose Internet Mail Extensions or Network News Transfer Protocol for Internet discussion groups. The server will work with some but not all implementations of Secure Sockets Layer.

Nevertheless, the QuickMail Pro Server is an easy-to-administer server that can handle all your users' incoming and outgoing Internet mail, or it can be used in-house as an intranet mail server. The server runs as an NT service or a Win95 windowless application that runs in the background.

You can run QuickMail Pro Server in either dedicated or dial-up connection mode. The program supports Lightweight Directory Access Protocol, Ph, and Finger directory services. QuickMail does its business using SMTP and POP3. Accordingly, it is primarily a mail-downloading tool.

There are also other features that users of proprietary enterprise systems may miss, such as server-side rules and searching of messages.

That said, QuickMail Pro Server

THE BOTTOM LINE

QuickMail Office 1.0

QuickMail Office won't bowl you over with the power of its client software or its Windows 95/Windows NT server. But QuickMail's ease of administration and low price make it an attractive option for small and midsize offices.

Pros: Low price; easy to set up and use.
Cons: Limited tools in client limited security options; no support for Internet Mail Access Protocol.

CE Software, West Des Moines, Iowa; (800) 523-7638, (515) 221-1801; fax: (515) 221-2258; <http://www.ceaft.com>.

Price: \$649.95 for 10 users.

Platforms: Windows 95, Windows NT, Macintosh.

does offer an attractive alternative for those who don't need extensive security and complex replication and synchronization. The server is easy to configure and manage, and supports features such as user aliases, auto-forwarding of mail, and an Auto-Responder—a server-side utility that can automatically respond with e-mail to incoming messages. And the program's documentation spells out how things work in a clear language that even nonspecialists can understand.

Patrick Marshall is a senior writer at the InfoWorld Test Center. He can be reached at patrick_marshall@infoworld.com.

Site reporting and analysis tool

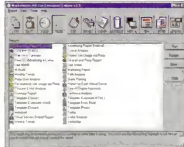
Hit List raises Web-reporting bar to enterprise level

By Lai-Han Szeto

IF YOU ARE LOOKING for an enterprise-scale Web log-analysis tool that actually works, Marketwave's Hit List Enterprise 3.5 fits the bill. You will find Hit List to be a more-than-adequate tool—revamped with some real-world necessities that many companies are looking for as they expand into Web space.

Hit List can manage as many as 500 virtual servers. In addition, you will find cookie and path-analysis capabilities, as well as DNS Express, which handles DNS lookups that work in the background.

Among its stellar added features is DataLink, a data-mining tool essential for today's business to understand customer needs and market direction. Also new is User-Track, a proxy-monitoring tool to gauge the progress and productivity of your user groups.



HIT LIST ENTERPRISE 3.5 sports an intuitive and simple GUI but has a complex and powerful architecture under the hood.

Solid 'datasource' architecture

Hit List behaved extremely well. The product and its documents are all downloaded from Marketwave's Web site. Menus were well-promoted, with helpful hints and suggestions that made installation and implementation a breeze.

Hit List depends on its "datasource," a Microsoft Access-based database schema that replicates the original log file and then optimizes data access as a series of tables. Optionally, you can link to a Microsoft SQL Server or ODBC-compliant database as your source. Hit List's data architecture and its capability to integrate with other databases allows it to take full advantage of the data-mining capabilities in its DataLink tool. It is capable of recognizing access to Sybase, Informix, Oracle, DB2, and Microsoft SQL databases. You can implement simple lookups or do advanced queries.

Powerful, customizable reports

WYSIWYG report formatting was

handled by a set of menus that immediately put you in the context of the report outline, using a directory tree structure to display each element. Linkage to servers and log files was not mysterious: All relevant information was put in one collective series of tabs.

Reporting is built using open-ended customization. You can use Marketwave's templates, build one with the provided parts and pieces, or incorporate your own. Custom templates in HTML format can be imported or built in real-time. Reports can be generated in HTML, Microsoft Word, or comma-delimited format (with images excluded).

For administration, Hit List offers secured, remote reporting, using Windows NT profile-permission scheme.

I tested it with a 500MB Netscape log file and ran a complete analysis in about 10 minutes on an NT Workstation with a 166-MHz Pentium and 16MB of RAM. Although it was not a very complex file, it gives you an idea of Hit List's performance.

However, the price tag is steep;

THE BOTTOM LINE

Hit List Enterprise 3.5

Hit List provides enterprise-class Web reporting and analysis with flexible options and tight database integration. **Pros:** Essential data-mining tool, DataLink; extensive report customization; comprehensive intranet and proxy analysis. **Cons:** Costs a bundle.

Marketwave Corp., Seattle; (800) 521-8176, (206) 682-6801; fax: (206) 682-6803; info@marketwave.com; <http://www.marketwave.com>.

Price: \$6,995 per physical server, two clients; \$495 per additional client license.

Platform: Windows NT 4.0.

yet the cost can be expected for enterprise packages of this caliber. Hit List gives you robust tools to analyze log files and build reports almost immediately in a flexible, customizable fashion.

Lai-Han Szeto, a technology analyst at the InfoWorld Test Center, covers network management tools.

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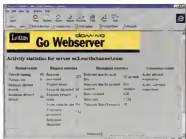
Go

Continued from page 74A

Although quirky in some areas, the Web-based administration forms allow you to configure every facet of the server. I found the long initial administration page somewhat cumbersome, requiring a lot of scrolling. Also, I had to repeat-

edly return to the main page after making modifications on subpages. Some of the pages provide a button to restart the server after changing settings, but an option to stop and restart the server from the front page would be convenient.

Despite its plain administration interface, the Domino Go Webserver offers many security features,



DOMINO GO WEBSERVER'S activity monitor shows statistics within any Web browser.

THE BOTTOM LINE

Lotus Domino Go Webserver 4.6

Domino Go Webserver is a Web server that runs on several platforms, implementing the latest Web server standards. With included services such as proxy and NetQuestion Search, this is an attractive solution for building secure, commerce-oriented Web sites.

Pros: HTTP 1.1-compliant; Web-based administration; SNMP support; support for Secure Sockets Layer 3; extensive Java support; excellent logging, reporting, and customization features. **Cons:** Cumbersome and sometimes non-intuitive Web-based forms; lack of native or Java GUI administration tools; lack of automation APIs for NetQuestion indexing.

Lotus Development Corp., Cambridge, Mass.; (800) 343-5414, (617) 577-8500; <http://www.lotus.com>.

Price: \$495

Platforms: Windows NT, Windows 95, OS/2 Warp, AIX, Sun Solaris, HP-UX, OS/390; OS/400 support due in 1998.

including restricted access via Access Control Lists, password protection, and Secure Socket Layer (SSL) authentication. (A recently uncovered security bug, which permitted clients to access the system hosting the server, was fixed in the production version.)

Inclusion of SSL support makes this server eminently suitable for secure communications in intranets and Internet commerce. You can even set up the server as an SSL Certificate Authority. Domino Go Webserver also includes a proxy server for many Internet protocols.

Many of these powerful features are somewhat marred by nonintuitive configuration tools. I found that many advanced configuration options were easiest to set by editing the configuration files directly or by running command-line utilities. I kept wishing for a Java-based GUI tool to make administering the server more user friendly.

As Web sites fill with rich content, users drown in information while starving for knowledge. The Domi-

no Go Webserver includes the NetQuestion full-text indexing and retrieval engine to address this problem. With NetQuestion, users can locate Web pages quickly using simple or advanced keyword searches.

NetQuestion's search and retrieval engines work very well. However, building an index involves manually creating a list of files (HTML or text) to be indexed — a laborious and error-prone task, making it impractical for frequently changing content.

If you need a high-performance, secure, scalable Web server that can run on several platforms, Lotus Domino Go Webserver nicely fits the bill. It's well-suited as a departmental groupware information server or as the basis of a commercial site for your customers. The ability to migrate Go applications to the Lotus Domino servers is an added bonus.

Gess Shankar (gess@earthchannel.com) is an author, developer, trainer, and Webmaster.

QUICK BYTE

BeanBag packages files for autoinstall

JAVA-INSTALL UTILITY

BeanBag, alpha

BeanBag is a Java developer tool from IBM's AlphaWorks that packages Java applications for distribution and automated installation by end users. You can use BeanBag to create install packages for any Java 1.1-enabled platform without developing platform-specific setup.

Although it implements some nifty techniques, the current alpha version's features are rather sparse. You start by manually creating a text file — essentially a list of installation instructions — and specifying which files need to be installed and their target locations.

The packager, bagMan, reads this file and generates a Java source file called control.java. Then you invoke bagMan again to build a single self-extracting Java class file with the installer, the instructions, and the various executables and support files.

BeanBag can install single files or file sets in ZIP or JAR archives. It has its own API for tasks such as creating directories, creating icons and shortcuts, and updating the system registry.

But there is very little automation involved in generating the initial control.java source file and

output Java class file. You have to pre-build the ZIP and JAR archives. Even though you can detect the OS environment and customize the installation, it could be done at the Java source-code level by using the BeanBag API calls and modifying the control.java file. Future updates should automate this process.

Because there's no GUI front end for creating installation packages and user interaction during install, you contend with scripts and command-line invocation much like the JavaSoft Java Development Kit itself. However, GUI features are in prototype stages and will be part of the final release.

For now, BeanBag is an installer for the basic installation of a set of files in disparate target platforms. It helps the creator by automatically taking care of system-dependent factors while providing the power to customize with system-specific native methods.

BeanBag is a great idea and worthy of evaluation, but it has a long way to go to become a full-fledged developer tool.

IBM's AlphaWorks, San Jose, Calif.; (408) 927-3560; <http://www.alpha.works.ibm.com/formula;free beta download>.

— Gess Shankar, Review Board

INSIDE THE FIREWALL - DAVE TAYLOR

Electronic résumé submission can be a revealing source

IN MY PAST FEW columns I've talked about the need for a more intelligent intranet-based system for organizing résumés and managing available jobs. In parallel to this, of course, my company was busy trying to fill a couple of open IT jobs, revealing some surprises...

What are your employees up to?

The first surprise was that many of the electronic résumés we received were from people at major corporations sending their résumés on company time. From Sun Microsystems to Xerox, there was quite a cross section of e-mail messages from candidates exploring available jobs during work hours, which I can only assume means they were not productively working.

This left me with a dilemma, because I believe it's important to manage people

by tasks or objectives rather than simply by spots on a clock. On the other hand, how good are employees going to be if they already have a track record of spending the work day searching for new jobs and responding to the listings?

A more surprising problem was the lack of cover letters and the remarkable frequency of spelling and grammatical errors in the résumés received. But I'll get back to this problem later.

Gathering electronic résumés

To make our résumé-submission process friendly, we set up an e-mail auto responder to send a thank-you message to anyone who submitted a résumé — a simple task in Unix using the Vacation program. However, because the process was automated, it led to some very interesting ideas about how we could ease the process of receiving résumés.

Our plan revolved around scoring the résumés as they came in: All résumés would start with a basic score of 10, and the receiving program would subtract points for each spelling mistake, missing cover letter, and so on. Then the résumés would be sorted and organized by score, allowing us to imme-

diately see the best of the submissions. Of course, the coolest aspect of this system would be that inappropriate résumés could be screened out automatically.

Even more valuable, common acronyms and jargon could be replaced by more friendly wording before the résumé was viewed by human eyes. This is a real problem: I received a letter from a reader who complained that

the biggest challenge when he's reading résumés is the plethora of mysterious acronym usage, leaving him baffled and unable to properly assess the candidate.

Any existing solutions?

Having said this, we have yet to figure out how to implement such a solution. But there are a number of commercial solutions already available for managing résumés and the online job process that are worth highlighting, though none as sophisticated as what I mentioned above.

Jobspan (<http://www.jobspan.com>) offers a private network solution called Private Jobspan. According to the company, "the focus of Private Jobspan is to have an automated internal process for finding current employees who may be a good match for an open

position within the company."

HirePoint (<http://www.hirepoint.com>) also has a job and résumé database that includes key services such as scanning submitted print résumés and posting and tracking résumés and applicants.

NetStart (<http://www.netstartinc.com>) has a different approach to recruiting databases with its TeamBuilder product, which runs on a Windows NT server. You can post jobs and actively screen, seek, sort, and analyze résumés and candidates.

Reader John Checco also sent me a note about a solution he's been developing that includes résumé histograms: a zip-code search system based on distance of applicants from the hiring office. You can see the status of his work at <http://www.checco.com>.

How close do these come to the needs of your organization? It's a sure bet that you're finding it difficult to harness the potential of the Internet and intranets for your hiring needs. If you do have a solution in place, let us know how it's going.

Dave Taylor is President of I-commerce Innovator The Internet Mail (<http://www.internetmail.com>) and can be reached via e-mail at taylor@internetmail.com.

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The companies you refuse to do business with are also those you'd hate to lose

If Dr. Jekyll set up shop down the street, would you do business with him even though you know full well that his Mr. Hyde personality is always lurking? I'm beginning to get the impression that a lot of *InfoWorld* readers feel that dealing with some vendors' dual personalities is just part of the computer

business. I got this impression from the results of our continuing experiment with blacklists, in which readers send me the names of vendors they refuse to consider for new business. Surprisingly, nearly all the major hardware vendors showed up on these lists. To get some more perspective on what those tallies meant, we asked for "golden-list" lists as well: those companies that IT managers would rank as their most preferred vendors.

Once again, the results are both illuminating in some respects and perplexing in others. The golden lists definitely help distinguish between some of the major players. Of the vendors that had led the blacklist pack, the one that benefited the most from the golden lists was Hewlett-Packard's printer business. It garnered more golden-list support than any other vendor. Perhaps predictably, much of that support was in the form of outrage that HP should show up on the blacklist tally at all. But one reader had a reasonable explanation for the divergent views.



"Perhaps the reason for the complaints about HP printers is because of its entry into the low-cost laser-printer arena," he noted. "Its industrial strength printers are superb. We've had lots of troubles with its 'personal laser printers' such as the 5-L."

The golden lists effectively cancelled out the blacklists for most vendors — except Packard Bell and Iomega. Neither received a golden-list vote, yet both continued to pile up blacklist marks at a prodigious rate. There were some differences among the IBMs, Compaqs, Dells, Gateways, etc., in terms of their ratio of blacklist to golden-list tallies, but that's probably too fine a distinction to draw.

The absence of software companies we saw last time was apparently just an oversight. Microsoft jumped right into the forefront of frequent blacklist inhabitants, mostly on complaints about buggy products and poor service. Still, Microsoft got enough golden-list votes (yes, there are people who like

Microsoft) to have a profile that was similar to most of the major hardware companies.

One software company that did show up on a fairly large number of blacklists, without any golden-list entries to match, was Computer Associates. In most cases, readers felt CA had acquired — and then ruined — a former preferred vendor.

Probably the biggest surprise for me was the frequency with which 3Com showed up on golden lists. 3Com, which did not receive enough blacklist votes to mention, wound up appearing on more golden lists than any other company besides HP. The main reasons cited were generous interpretations of warranty and service policies and simple fondness for its products.

Although the golden lists clearly helped a lot in providing us with more information of interest, there was one very odd phenomenon. In quite a few cases, a reader would have the same company on both the blacklist and the golden list. What did that mean? Some made it clear they were blackballing a particular product line but were devoted to another from the same vendor, which makes sense. Others said they loved the company's products but hated its support, which does not exactly sound like a blacklist unless they mean that they buy the company's products but insist on third-party support.

Still others didn't bother to explain it at all, maybe assuming we'd understand how easy it is to have a love/hate relationship in this business. If nothing else, it's clear that all vendors can display more than one personality, and the more we can learn about those personalities, the better. So keep those blacklists and golden lists coming to gripe@infoworld.com and we'll see how much further this experiment can take us.

Ed Foster has been writing about technology and consumer issues for nearly 20 years.

Send him gripes about computer companies and products at gripe@infoworld.com, or visit his Gripe Vine Forum on InfoWorld Electric (<http://www.infoworld.com>).



TO THE EDITOR

THIS WEEK'S LETTERS include a thumbs up from the author of Standard Generalized Markup Language (SGML), opinions about the desktop metaphor, and more dialogue about Microsoft's late release dates.

XML support

THANKS FOR THE fine article on XML [Extensible Markup Language] and its potential. [See Down to the Wire, Aug. 25, page 116.] It was the first article I've seen that understood how HTML is supposed to be used.

I invented SGML, the parent language of both XML and HTML, and it gets frustrating at times hearing HTML bad-mouthed as a weak formatting language when it was never intended to be one at all.

If I can help your crusade for a "communications-centric industry," please let me know.

Charles Goldfarb
Information Management Consulting
Saratoga, Calif.
Charles@SGMLsource.com

Desktop metaphor

I JUST FINISHED reading Nicholas Petreley's column on the desktop metaphor, and I heartily agree. [See Down to the Wire, Sept. 8, page 120.] I work as a systems analyst for an Omaha company, but in my spare time I've developed applications for a couple of preschools in town.

I've never had a problem developing simple-enough applications for them to use, but training teachers to use Word (specifically for mail merge) has been an adventure (for example, a typical question might be "Why do I have to save when I just typed it all in?").

The desktop metaphor is fundamentally flawed. The hardest part in training these teachers to use Windows 95 is correlating the desktop to something that they understand, mainly because it requires an understanding of the file system.

It just amazes me that OSes are still file-system-centric — I'm still functioning in the same manner I did 13 years ago when I tinkered with my Atari 800 in Atari-DOS. Today's OSes don't shelter us from complexities but simply hold our hands a little better. As Petreley pointed out, the file system should be hidden completely from the user, which is why surfing the Net for people is so easy — it doesn't require any knowledge of the computer's underpinnings.

I could list a lot of specific things I'd like to see changed, but basically it would seem that the whole "computer" needs to be engineered from top to bottom for nontechnical people.

Scott Vassar
Omaha, Neb.

Cyber Patrol

IN THE PRODUCT REVIEW of Cyber Patrol, I believe that *InfoWorld* did not have the time to really give the product or the company a good going over. [See Product Reviews, Sept. 1, page 100.] I believe that if it had, it would have given the product a much colder grade.

For a little background, here at East Lansing Public Schools we are running Cyber Patrol LAN, Version 3.3, on a Novell network using Windows 3.1 on most desktops.

In May of this year, our students found a way to remove Cyber Patrol from the desktop, and we informed Microsystems Software of the bug. Another problem with the soft-

ware occurs when there are more than 50 users running the product off the same server. As more users attach to the server, the slower it is to enter into Windows. Microsystems Software technical support claims that the next version will take care of this problem.

The last major problem has to do with running Cyber Patrol with an Iware style product. When Iware's WinSock starts, Cyber Patrol starts looking at all words typed into the computer — even in a word processor.

I hope that this letter will help *InfoWorld* the next time it tests a Cyber Patrol style product.

James DeYoung
East Lansing, Mich.
deyoung@inet.cps.k12.mi.us

We spent a great deal of time with the previous version of Cyber Patrol Corporate, Version 1.0. In the context of our Aug. 25 Comparison. [See page 58.] Despite its name, the product wasn't terribly corporate, missing important monitoring features that the enterprise demands. We dropped Version 1.0 from the Comparison and relegated the next 3.3 release to a stand-alone review to examine the monitoring add-on. The product squeaked by with a "satisfactory," but with several caveats.

—William Ginchereau

I INVENTED SGML ...
AND IT GETS FRUSTRATING AT TIMES HEARING HTML BAD-MOUTHED AS A WEAK FORMATTING LANGUAGE WHEN IT WAS NEVER INTENDED TO BE ONE AT ALL.

Charles Goldfarb

Swallowing fiction

I JUST READ MICHAEL VIZARD's column and wanted to share my thoughts. [See From the News Desk, Sept. 8, page 3.] Yes, Microsoft does need remedial instruction in quality control and logistics. But that wouldn't change the way it operates. I believe Microsoft knows quite well that it can't deliver half of what it promises in the time it says it can. And the half that is delivered won't work half as well as claimed. What Microsoft is doing with feature creep and promises of the Holy Grail being delivered in the "next release" is keeping people walking like lemmings over the Microsoft cliff on the theory that it will be there to catch them with the next-version safety net. That way Microsoft can keep pulling away Novell, Unix, and AS/400 customers, and it won't lose customers to Warp Server and the network operating systems that are already where you want to go.

Tom Rowe
trowe@cdr.wisc.edu

GREAT JOB — Michael Vizard is correct. I just can't believe how many people swallow the fiction and buy the broken products. I guess they think since the Borg — I mean, the Microsoft/Intel motto — is "assimilation or death," assimilation might not hurt as much.

After all, resistance is futile. The reality is that you have a lot of pain, expense, and it lasts forever.

Newell A. Franks II
newell@burroak.com

DOES MICROSOFT need remedial instruction in quality control or logistics? I don't think so.

Let me share some thoughts and observations with you.

1) It's human nature to be curious about what's around the bend. Although a good percentage of users are happy with what they have, the majority of users hunger for new releases or even information about them.

2) It's human nature to be optimistic about what can get done. After working extensively with both groups, I don't know who the bigger optimists are: software developers or marketers. One rule of thumb that I've developed, whether it's shingling my roof or working with technology: Things take twice as long to get done than you originally think.

3) It's human nature to make a change that falls somewhere in between. We're consolidating our current five news sections into three. The existing five sections are Client, Server, Networking, Telecom World, and Internet & Commerce. As of next week the three sections will be labeled Client/Server, Networking & Telecom, and Internet & Commerce.

4) It's our nature to be optimistic. We want to believe. When Bill Gates, Jim Allchin, or other figureheads "commit" to a delivery date, everyone in the room knows that they are essentially lying, yet we buy in to it anyway.

5) Maybe lying pays off. Look at the success of some of those industry leaders making the promises. No one ever got ahead by suggesting that a development project will take twice as long as planned. And it's not just Microsoft that falls prey to the modern-day equivalent of Great Expectations. It's human nature.

Peter Moran
PeterM@MetaInfo.com

Total cost of ownership

NICE TO SEE SOMETHING in print that I have felt for a long while. [See IS Survival Guide, Sept. 1, page 84.] Total cost of ownership is not the panacea it is trumpeted to be by some business pundits; it is too often just another way to avoid real process analysis and change by applying a formula.

The fallacy is in focusing solely on cost. What makes more sense: spending \$1,000 a thousand times to save a million bucks, or spending \$500,000 once to save \$750,000? With most terms I've been on, the "low cost" of the first approach is an easier sell to management, even though it costs more in the long run and has less net return.

John Pfeiffer
US West Communications
Seattle

FROM THE EDITOR IN CHIEF · SANDY REED

Streamlined news sections will make it easier to find related information

Performance tuning is key to the health of any organization, including newspapers. At *InfoWorld*, we're constantly looking for things that need tuning. Sometimes the changes are barely noticeable to readers. For example, last year we added our Web address (<http://www.infoworld.com>) to the bottom

of every editorial page. Other tune-ups are highly visible, which was the case when we added the highlights flap in front of Page One earlier this year.

Next week we'll make a change that falls somewhere in between. We're consolidating our current five news sections into three. The existing five sections are Client, Server, Networking, Telecom World, and Internet & Commerce. As of next week the three sections will be labeled Client/Server, Networking & Telecom, and Internet & Commerce.

Our goal is to make it easier for *InfoWorld* readers to find information. We're not reducing the coverage of any areas, just combining news articles about related topics into these consolidated sections.

The news-section realignment also will affect the placement of two columns, Window

Manager by Brian Livingston and Help Desk by Brett Glass. Currently, Window Manager appears in the Client section, and Help Desk is in the Server section. Next week, both columns will appear in the new Client/Server section. Other regular features in Client/Server will be Street Prices by Jim Battey, formerly in the Client section, and The Bug Report by Bugnet, from the Server section.

As always, we're interested in knowing what our readers think about *InfoWorld*. Send comments on client/server news coverage to carla_cunningham@infoworld.com, networking and telecommunications coverage to matthew_woolcott@infoworld.com, and Internet and Internet-commerce coverage to jessica_davis@infoworld.com.

Editor in Chief Sandy Reed has been following the high-tech industry as a journalist for nearly 15 years. Send comments to sandy_reed@infoworld.com.

INFOCRYPTION

This week we've taken a quote from a former CEO of Digital and "encrypted" it using a simple substitution cipher where each letter of the alphabet has been replaced by another.

Short words, punctuation marks, character frequency, and plain-old luck should help you unlock the meaning in the message.

IERFR NQ TS FRHQZ WSF HTP

NTXNYNXGHJ IS EHYR H VSBGLGRF

NT ENQ ESRB.

In addition, here's a hint: In this week's InfoCryption

— CRT SJQZT

RE

Answer can be found on *InfoWorld Electric* at <http://www.infoworld.com/printlinks/>.

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Isolation Systems Ltd.



Whether you take faith from CEOs, marketers, or engineers, the benefits of high technology often must be accepted without real evidence. It is satisfying, then, to substantiate one frequently touted claim about a new product category. The technology is virtual private networks (VPNs), and deploying one can save your company a lot of money.

For this Comparison, we defined a VPN as any way to use the Internet to securely transport private data. There are a number of dedicated hardware and software options, and

many firewalls can now encrypt and tunnel data, creating a dedicated path on-the-fly across which packets can flow. Large service providers, as well, are seeing that providing VPN services can be a way to distinguish themselves in what is generally a commodity-based business.

THREE AND A THIRD PARTY. For our firewall solution, we chose Check Point Software's FireWall-1, Version 3.0, and its VPN+DES encryption module. The company's products are well-regarded, and Check Point has the largest share of the firewall market internationally.

When we selected the products to test, the only hardware-based solution that included a certificate authority was TimeStep's Permit family, making it an easy choice. Likewise, Isolation Systems' InfoCrypt Server was the only software-based VPN product that had a certificate authority and supported Network Address Translation.

Our last solution, Virtual Private Data Network Services from Advanced Network & Services (ANS), was a change of pace for us, accustomed as we are to testing software and hardware by getting our hands dirty on them. In this case, we didn't even have a chance to tear shrink-wrap off of a product box.

Since moving to solutions-based testing last year, we have wanted to score a third-party service against other "tested" solutions in a Comparison, and this VPN roundup seemed a good place to give it a try. Because LAN managers already have plenty on their plates, many believe that WAN and Internet connectivity (in other words, everything beyond a company's walls, including VPNs) will increasingly, perhaps exclusively, be outsourced.

Among the ISPs that offer VPN services, ANS, a subsidiary of America Online that will likely be acquired by WorldCom as part of the CompuServe deal, was our choice because they used AOL's public backbone for their VPN traffic, an infrastructure that came closest to

Testing strategy

The question

The cost of WAN connections to remote offices is exorbitant and seems unnecessary considering the "free" nature of the Internet. You've heard that virtual private networks can save a bundle, but there are a number of ways to build a VPN. Which offers the best value?

The issues

- Type and effectiveness of security schemes
- Performance degradation due to encryption
- Cost of ownership

The options

- Check Point firewall solution
- TimeStep hardware-based solution
- ANS ISP solution
- Isolation software-based solution

The answer

All of the VPNs we tested will yield substantial savings over leased lines, without compromising safety or performance. The TimeStep hardware-based solution offered the best combination of price, security, and speed. The ANS ISP solution was close behind, but freeing yourself from management headaches comes with a bigger price tag.

illustrate the percentage overhead that each solution's encryption scheme places on it. As the charts show, degradation rarely exceeded 10 percent. And in informal tests that we ran just to satisfy our curiosity, all four solutions were no more than 15 percent slower than a 56Kbps leased line.

In every solution, we found security to be satisfactory, and it will only improve as standards solidify. Because traditional encryption means handing over your keys to would-be partners, we think certificate-based authentication — using a trusted third party — is a better way to authorize wide-scale network communication. And if VPNs catch on the way we think they will, there will be a lot of packets to be protected.

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- 92 Isolation software-based solution

- 92 Bytes at the end of the tunnel If encryption, key pairs, and certificate authorities are new to you, this chart shows how you visualize how a VPN works.

- 96 So where does IPX fit in?

our definition of a VPN. Other ISPs we considered use private frame-relay connections.

MAKING THE CASE. Leased lines are exorbitantly priced and, in the age of the Internet, increasingly anachronistic.

When we priced a hypothetical 20-city WAN using our four solutions and a leased-line scenario (see the Projected Basic Ownership Costs table on page 84), the value of VPNs astounded us.

And though savings may be the argument that convinces a CIO, money is not the only reason to switch. VPNs make it easier to add new offices to your WAN because a long-haul carrier and another local loop back at the home office isn't needed. You simply connect that new office to the Internet.

Perhaps more importantly, we found the traditional concerns about VPNs — that they are slow and unsafe — to be unfounded. First, we think concern about the Internet's performance often is blown out of proportion. In our tests, we didn't experience any outages or unpredictable results.

But because we can't control the hops a packet takes across the Internet, we couldn't directly compare the performance of these solutions to one other or to a leased line's performance.

Our benchmarks on page 86 illustrate the percentage overhead that each solution's encryption scheme places on it. As the charts show, degradation rarely exceeded 10 percent. And in informal tests that we ran just to satisfy our curiosity, all four solutions were no more than 15 percent slower than a 56Kbps leased line.

In every solution, we found security to be satisfactory, and it will only improve as standards solidify. Because traditional encryption means handing over your keys to would-be partners, we think certificate-based authentication — using a trusted third party — is a better way to authorize wide-scale network communication. And if VPNs catch on the way we think they will, there will be a lot of packets to be protected.

Exclusively on InfoWorld Electric. Go to <http://www.infoworld.com> and click on the Test Center button.

How we tested

Results at a glance

Continued from page 1

or performance, that we feel quite comfortable saying VPNs are ready for the enterprise.

With the market, in our view, on the verge of exploding, it's no wonder VPNs are different things to different vendors. Everyone wants a piece of the action. We looked at four very different ways to build a VPN, and TimeStep's Permit gateways and fast hardware-based encryption.

We have often found that the most interesting solution in a Comparison finishes second. In some cases, an otherwise excellent product has an Achilles' heel; in others, a new product

is just a little too green. Silver-medalist Advanced Network & Services' (ANS) Virtual Private Data Network Services caught our fancy mainly because it is the first time we have pitted a third-party provider against products we tested ourselves. It wasn't easy to relinquish control of our network and the

hands-on analysis we've accustomed to, but once we did, we remembered what makes outsourcing so appealing — the nights of untroubled sleep it brings.

The Check Point firewall and Isolation software-based solutions comprised the second tier, but they'll still warm the heart of any bean counter.

Eliminating leased lines in a large WAN environment in favor of any of these four VPNs can save hundreds of thousands of dollars.

TimeStep hardware-based solution

BOTTOM LINE
6.9

This solution's lack of Network Address Translation (NAT) support means that only locations with legal, static IP addresses will be able to use it. This combination of Permit gateways, Secure Network Management System software, and the GateConfig utility won the Comparison thanks to strong showings in our Implementation and

Encryption Overhead categories. But with the emergent VPN market so competitive, TimeStep knows it doesn't have time to savor a victory. A Permit release scheduled for December will add NAT support, full IPsec compliance, X.509 directory support, and integration with Check Point's Firewall-1 modules. Other future enhancements include Triple-DES and an API toolkit for using alternative encryption algorithms.

PROS

- Easy installation and administration
- Excellent configuration utility
- Little encryption overhead
- Savings over leased lines

CONS

- Lacks NAT support
- Offers only 40-bit and 56-bit DES
- Lacks cross-certification of certificate authorities

ANS ISP solution

BOTTOM LINE
6.7

Although the VPN it built was both fast and secure, ANS does not seem totally secure in the role of provider. The unfinished aspects of VPN technology certainly contribute to this, but we also sensed more subtle growing pains at the company, including incidences of finger-pointing and back-passing. Maybe sitting back and watching

ANS handle our management and administrative chores just gave us extra time to nipclick. The company handled crises admirably, notifying us of problems within minutes and fixing them remotely. All of this service costs a lot but still costs far less than leased lines. As ANS and other third-party providers mature, we think they may grab a big chunk of the VPN market.

PROS

- Full-service administration and management
- Little encryption overhead
- Good handling of crises

CONS

- Expensive compared with in-house solutions
- Ducked responsibility for performance problems and late circuit delivery
- Mostly proprietary security

Check Point firewall solution

BOTTOM LINE
5.9

Check Point's Firewall-1, Version 3.0, offered the best security of the Comparison, including an implementation of the early IPsec draft. But we found its management and administrative capabilities only adequate. The Security Policy utility was confusing to use, and it doesn't have a policy-disable feature. We also

couldn't update firewall software from a central management console or restart the Firewall server remotely. This solution also lost points in support categories that, although weighted less individually, make a difference when considered in total. For example, Check Point's documentation didn't always distinguish between Sun Solaris and Windows NT versions.

PROS

- Early IPsec implementation
- Acceptable performance degradation
- Savings over leased lines

CONS

- Confusing, limited administrative tools
- License key difficulties
- Poor documentation

Isolation software-based solution

BOTTOM LINE
5.6

The lowest rated solution of the Comparison had at least one thing going for it: over the winner, NAE. It also was the only solution to offer both Triple-Pass DES (112-bit key) and Triple-DES (168-bit key) encryption. So what went wrong? InfoCrypt Server doesn't offer remote management, and it indicated that our link was still up

when the ISDN router was offline. Isolation promises solutions for both problems sometime this fall. We also had to use a separate syslog utility to analyze anything more than basic connection information. Finally, the product's degradation due to encryption was the worst of the Comparison. Like the other solutions though, the cost savings this VPN offers over leased lines make us forgive a lot of faults.

PROS

- NAT support
- Minimal impact on existing infrastructure
- Extra security options

CONS

- Weak built-in monitoring capabilities
- Lacks remote management
- Relatively high encryption degradation
- Some manual configuration

RELATED ARTICLES

Sept. 1, page 59

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ISP

Earthlink Networks
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■ Denver, ISDN

Software

Netscape Enterprise Server 2.0
Microsoft Windows 95
Microsoft Windows NT Server 4.0
Optimal Networks Application Expert 1.0
Network General Sniffer Dohc

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Report Card

Virtual private network solutions

GUIDE

- Rating
- Score in points
- See this page for detailed report information

Individual reviews only finished, production versions of products, newer beta test versions. Products or solutions receive ratings ranging from unacceptable to excellent in various categories.

Scores are defined by multiplying the weighting of each criterion by its rating, where: Excellent = 10 - Outstanding in all areas.

Very Good = 8 - Meets all essential criteria and offers up essential advantages.

Good = 6 - Meets essential criteria and includes some additional capabilities.

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	Weighting	Check Point firewall solution TM 84	TimeStep hardware-based solution TM 86	ANS ISP solution TM 88	Isolation software-based solution TM 92
		FireWall-1, Version 3.0 VPN+DES encryption module	Permit gateways Secure Network Management System (SNMS) GateConfig	Virtual Private Data Network (VPDN) Services	InfoCrypt Server Certificate Authority ExtremePCI encryption accelerator
Performance					
Implementation	10%	TM Good TM 0.6 FireWall-1 installed easily, but we spent days tracking down working license keys for the encryption module. It turned out that Check Point's Web site had what we needed, but the company failed to point us to it.	TM Very Good TM 0.8 Although it otherwise approached our implementation ideal, the TimeStep solution suffered from a lack of Network Address Translation (NAT) support. But installing the Permit gateways and SNMS software couldn't have been easier.	TM Good TM 0.6 ANS guaranteed circuit delivery within six weeks but could not keep its promise. Perhaps even worse is that it tended to shift blame for the delay. Other than this we did not have to worry about any part of the installation.	TM Excellent TM 1.0 We were happy to be able to use our existing network interface cards, and unlike the TimeStep solution, the Isolation solution offered NAT support. We also liked the capability to generate and send keys directly to a remote machine.
Administration	10%	TM Good TM 0.6 Daily and weekly administration was minimal, and the Security Policy utility interface was confusing. It was hard to assign policies to multiple firewalls, and the utility does not have a policy-disable function.	TM Good TM 0.6 As in other solutions, it did not take much effort to maintain encrypted tunnels. We liked the well-designed GateConfig utility, used for logging, software changes, and some configuration changes.	TM Very Good TM 0.8 Perusing ANS' daily and weekly utilization reports is about all there is to administration, although they do not provide a lot of detail about tunnels. ANS notified us immediately when problems occurred.	TM Good TM 0.6 Once everything was up and running, administrative tasks were very light. But there's no way to check system logs without using another utility. It also incorrectly indicated a virtual private network (VPN) link was up when it wasn't.
Security	20%	TM Very Good TM 1.6 We liked Check Point's implementation of the early IP Security (IPSec) protocol draft, which offers flexibility in tunneling illegal IP addresses. But Check Point does not offer an early version of Internet Security Association and Key Management Protocol (ISAKMP)/Oakley.	TM Satisfactory TM 0.8 Although security is handled well, this solution had a major limitation — it offers only 40-bit and 56-bit DES, both of which have been broken. The solution also does not allow for cross-certification of other certificate authorities.	TM Satisfactory TM 0.8 Much of what ANS offers today is proprietary. However, it does maintain IPSec compliance for the encapsulating security payload and authentication headers. ANS intends to embrace the IPSec standard completely as soon as it is solidified.	TM Good TM 1.2 Isolation's solution did not rate higher in this category because ISAKMP/Oakley was not fully implemented during our tests. However, InfoCrypt was the only product to offer both Triple-Pass DES (112-bit key) and Triple-DES (168-bit key).
Manageability	15%	TM Satisfactory TM 0.6 FireWall-1 did not offer any way to update software on our firewalls from a central management station, nor were we able to remotely restart the FireWall server. About all we could do was create objects and policies and install them remotely.	TM Good TM 0.9 The solution manages restarts, logging, and small configuration changes very well. However, software updates are not so elegantly handled; to update a box we had to download three separate files one at a time.	TM Excellent TM 1.5 All of the management issues we had to deal with in other solutions did not exist in the ANS solution. You will not need to worry about software upgrades, troubleshooting problems, device integration, or performance monitoring.	TM Poor TM 0.3 InfoCrypt locks remote management, although the company says it will be available by the end of October. Isolation's hardware VPN solution (which was not tested) uses Enterprise Manager, a much better management tool than anything offered by InfoCrypt.
Encryption overhead	20%	TM Good TM 1.2 Like Isolation's, Check Point's solution depends on the server's OS for packet receiving and routing, putting it third in our benchmarks. With about 10 degradation, performance was acceptable.	TM Excellent TM 2.0 As we expected from a complete hardware solution, this solution delivered the best performance in all of our tests. Encryption occurs at the chip level; there is no software or OS overhead.	TM Very Good TM 1.6 Second only to the TimeStep solution's, the ANS solution's performance proved that its encryption box could match that of an in-house solution. Degradation never exceeded 8 percent.	TM Satisfactory TM 0.8 Degradation here was the worst of the solutions compared, perhaps due to the numerous packet collisions we witnessed on the segment that had the WAN router and InfoCrypt.
Support and Price					
Documentation	5%	TM Poor TM 0.1 We found Check Point's documentation confusing and lacking in detail. Manuals include procedures for both Sun Solaris and Windows NT versions.	TM Satisfactory TM 0.2 Documentation was slim but covered most of the basics. SNMS online help is not context-sensitive, but it offers quick access to information.	TM Satisfactory TM 0.2 Because VPON Services require little to no user intervention, you do not have to worry about documentation.	TM Satisfactory TM 0.2 Documentation was limited; the product had just been released when we tested it. Isolation faced us documentation and offered a Web-based version.
Technical support	5%	TM Satisfactory TM 0.2 We called a Check Point reseller and Check Point. The integrator offered only a minimum of information, but Check Point offered an explanation that was more painful than the problem itself.	TM Excellent TM 0.5 TimeStep's technical support was stellar. A technician answered all of our technical-support calls immediately, and we always received very helpful advice delivered in a patient manner.	TM Very Good TM 0.4 ANS' network operations center answered quickly and immediately began troubleshooting. After initially blaming MC for an offline link, it resolved our problem.	TM Excellent TM 0.5 Isolation impressively handled our calls. One technician was familiar with obscure aspects of NT networking, but did not hesitate to defer when he was unsure of something.
Support policies	5%	TM Satisfactory TM 0.2 Because Check Point sells its products only to channel partners, the type and cost of support you will receive is as individual as the integrator. We based our score on the support offered by an integrator referred to us by Check Point.	TM Good TM 0.3 TimeStep offers one year of around-the-clock telephone support free of charge. Additional years cost 15 percent of the list price of the installation. The company does not offer technical support on its Web site.	TM Very Good TM 0.4 ANS offers around-the-clock phone support, and the company guarantees 99.5 percent uptime. For shops that cannot afford even the few minutes of downtime required for upgrades, ANS can provide a second set of hardware.	TM Satisfactory TM 0.2 Isolation offers business-hour support free for one year; around-the-clock support costs 20 percent of the installation list price. Isolation's Web-based support is good, but a searchable knowledge base would have made it even better.
Projected Basic Ownership Cost	10%	TM Very Good TM 0.8 Like TimeStep's and Isolation's, the Check Point solution's VPN is a terrific value compared with leased lines.	TM Very Good TM 0.8 TimeStep offered the least expensive solution of those compared by about 15 percent.	TM Satisfactory TM 0.4 As expected, outsourcing a VPN costs more than building it in-house — about twice as much more in this case.	TM Very Good TM 0.8 Like Check Point's and TimeStep's, Isolation's VPN could save about one million dollars on a large WAN.
Final score		5.9	6.9	6.7	5.6

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Check Point firewall solution

The components

- Firewall-1, Version 3.0
- VPN+DES encryption module

You won't want to start virtual private networking with Check Point's Firewall-1 unless you have solid firewall management experience or some official technical training. Implementation was more challenging than in all of the other solutions.

Installation itself was straightforward, but we had a problem with license keys. The VPN+DES module is built into Firewall-1 but you must purchase keys to activate its functions. Our first keys did not work, and an updated cut of the software did not solve the problem either. After several days and numerous support calls, we learned

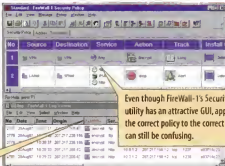
that Check Point's Web site offers a license-key request page that would have averted the delays, something we wish the company had pointed us to from the beginning.

Looks are deceiving

The interface of Check Point's Security Policy application looks simple, but

The Log Viewer shows how traffic flows through a firewall, which is invaluable for troubleshooting problems.

underneath its unassuming exterior lies a complex and often awkward interface for managing distributed firewalls. For instance, when defining a workstation or other network object on a remote firewall, we could not assign



Even though Firewall-1's Security Policy utility has an attractive GUI, applying the correct policy to the correct firewall can still be confusing.

that object to the firewall itself. As a result, Check Point installs the policy automatically generated by that object on all firewalls by default. Later, we found that we could select a particular firewall on which to install policies, but this

one was failing us. Unfortunately, Firewall-1 lacks this capability; we had to delete policies and recreate them as we troubleshooted. We discovered a workaround to the problem — setting a policy's valid date to Feb. 30 — but this was a poor substitute for a disable feature.

SLOGGING THROUGH THE STANDARDS

■ The IP Security (IPSec) initiative was originally intended to be a secure solution for IPv6, a proposed standard needed to extend IPv4's addressing scheme. However, IPSec has been customized by firewall, software, and hardware vendors to work with IPv4. IPSec consists of Layer 3 transport protocols, as well as encryption performed on both the payload and on internal addresses. When specifications for encapsulating security payload, authentication headers, and Internet Security Association and Key Management Protocol (ISAKMP) key management are finalized (expected next spring) the IPSec standard will be complete.

■ Point to Point Tunneling Protocol (PPTP), a Microsoft-style extension to the popular Point-to-Point Protocol (PPP), is a software-level tunneling specification that secures connections at Layer 2 of the Open Systems Interconnection model. PPTP enables the integration of tokens, provides dynamic address allocation, and leverages existing PPP connectivity. It has the added benefit of flow control to accommodate what Microsoft calls voluntary and mandatory tunneling — in other words, remote and automatic access. Microsoft implements encryption through a proprietary mechanism in Microsoft Point-to-Point Encryption.

Continued on page 86

Projected Basic Ownership Costs

VPNs yield big savings compared with leased lines

We calculated the cost of ownership for each virtual private network (VPN) solution based on a hypothetical, multi-site, three-year scenario (one central office and 19 remote offices in 20 different cities). For comparison purposes, we also calculated the cost of 20 56Kbps leased lines using the same multisite, three-year scenario. We assumed that the central office had a high-speed connection to the Internet but that remote offices did not, and that the telecommunications hardware in the leased-line scenario could be used with each VPN solution.

	Check Point firewall solution	TimeStep hardware-based solution	ANS ISP solution	Isolation software-based solution				
Platform								
	20 166-MHz Pentiums, 64MB of RAM 20 Windows NT Server 4.0 licenses 40 10Base-T NICs	1 166-MHz Pentium, 32MB of RAM 1 Windows 95 license 1 10Base-T NIC	N/A \$1,300 \$175 \$50	20 166-MHz Pentiums, 64MB of RAM 20 Windows NT Server 4.0 licenses 40 10Base-T NICs 1 166-MHz Pentium, 32MB of RAM 1 Windows 95 license 1 10Base-T NIC	\$30,000 \$13,000 \$2,000 \$1,300 \$175 \$50			
Hardware								
	N/A	Permit gateway 19 IntraGate gateways	\$5,795 \$43,225*	N/A ExtremePCI encryption accelerator	\$1,650			
Software								
	20 Firewall-1 and encryption module licenses	\$39,900 Secure Network Management System software	\$5,749 N/A	20 InfoCrypt server licenses Certificate Authority license	\$40,000 \$2,400			
Other								
	19 56Kbps lines to ISP 19 ISP accounts (includes Class C licenses)	\$136,800 \$12,555	19 56Kbps lines to ISP 19 ISP accounts (includes Class C licenses)	\$136,800 \$12,555	Virtual Private Data Network Services ANS IT1 service at central office 19 56Kbps lines to ANS 1 T1 line to ANS	\$385,700* \$76,100 \$136,800 \$16,272	19 56Kbps lines to ISP 19 ISP accounts (includes Class C licenses)	\$136,800 \$12,555
Support policies ⁴								
	\$23,400*		\$17,114*	included	\$8,810*			
Administration costs ⁵								
	4 hours per week	\$21,840	3 hours per week	\$16,380	1 hour per week	\$5,460	7 hours per week	\$38,220
Total cost		\$279,495		\$239,143		\$620,332		\$286,960
Leased-line cost ⁶		\$1,260,000		\$1,260,000		\$1,260,000		\$1,260,000
Savings from leased-line scenario		\$980,505		\$1,020,857		\$639,668		\$973,040

1. Network interface cards.

2. Includes 5 percent quantity discount.

3. \$550 per month, per site, plus setup fees.

4. Because we assume a VPN is a mission-critical application, we priced around-the-clock telephone support for three years.

5. Support for Check Point's products is available only through resellers. An integrator referred by

Check Point charges \$650 per month for around-the-clock support.

6. The first year of support is free; additional years are 15 percent of its price.

7. 20 percent of total list price.

8. Based on \$35 per-hour rates.

9. The total price of a 56Kbps leased line was \$1,750 per city, per month. This does not include support and administration costs.



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SLOGGING THROUGH
(CONTINUED)

■ Layer 2 tunneling Protocol (L2TP), an up-and-coming specification championed by Microsoft and Cisco, will combine the best of PPTP and Cisco's Layer 2 Forwarding. L2TP will run on multiple media (frame relay and ATM, for instance), and it will support authenticated tunneling devices and services. L2TP will not encrypt, but it will work alongside IPsec devices and software.

■ Socks5 is a Layer 5 session-level transport, development of which has been spearheaded by Avenet. Socks5 is unidirectional, meaning that intruders who infiltrate a pipe will be able to sniff only one side, not both. Socks5 also allows for concurrent pipes. Not a tunneling protocol per se, Socks5 is actually proxy-based. Thus, administrators can limit access to sensitive system resources and directories in addition to securing access to gateways. Even though Socks5 works at Layer 5, security can be augmented with other products, such as tokens, that work on lower layers, as most do.

■ Secure Tunnel Establishment Protocol (STEP) was developed by Compatible Systems to rival L2TP for secure LAN-to-LAN connectivity, although it operates at Layer 3 rather than Layer 2. One advantage STEP has over L2TP is that it prevents point-to-point connections from monopolizing an Internet connection. In other words, if a STEP tunnel is in place, a second connection can be established concurrently.

Like InfoCrypt, Firewall-1 supports Network Address Translation (NAT) at remote sites. However, doing so means using Check Point's own address translation, something Isolation Systems does not require. This limitation is not likely to be a deal-breaker, but it does mean moving from an existing NAT structure to Check Point's.

Daily and weekly administration of Firewall-1 and the VPN+DES modules is minimal and well within a typical manager's skill set. Once encryption policies and tunnels are established and working, there is little to do.

How safe is it?

The Firewall-1 solution offers three encryption schemes: the manual IPsec Security Protocol (IPsec), the Secure

Key Management for Internet Protocol (SKIP), and Check Point's Firewall Zip (FWZ). Because we want to create an apples-to-apples Comparison whenever possible, we tested IPsec and SKIP but not the proprietary FWZ. Overall, Check Point does a good job filling the void left in the IPsec and SKIP schemes, but the company's proprietary solution limits interoperability between non-Firewall-1 firewalls.

Manual IPsec, an earlier implementation of the IPsec standard, offers encryption, authentication, and Check Point's answer to the proposed Internet Security Association and Key Management Protocol (ISAKMP/Oakley key-exchange draft). Because this solution is a firewall implementation, it offers IPsec only in tunnel mode. In this

scheme, the entire original packet (including the header) is encrypted and then an encapsulating security payload (ESP) header and a new IP header are attached.

We liked Check Point's implementation of this early IPsec draft because it allows flexibility in tunneling illegal IP addresses. However, the scheme adds 40 bytes to each packet before transmission, which can significantly affect performance. (The FWZ method does not add the extra 40-byte payload.)

None of the solutions tested offered an early version of ISAKMP/Oakley as Red Creek Communications does, and we expected more from leaders in IPsec compliance, such as TimeStep and Check Point.

Check Point's implementation of

SKIP offers the ESP and authentication headers as well, but does not use SKIP's Certificate Discovery Protocol to exchange public keys. Instead, this solution uses a proprietary scheme based on the Diffie-Hellman key-exchange mechanism.

Finally, although Firewall-1's Management Server provides basic policy management features, the product falls short of offering complete remote management.

For example, Firewall-1 does not provide a way to update software from a centralized management station or remotely restart a Firewall-1 server. Although the product can create and install objects and policies remotely, these are satisfactory but unremarkable capabilities.

COMPARISON

TimeStep hardware-based solution

The components

- Permit gateways
- Secure Network Management System (SNMS)
- GateConfig

TimeStep's Permit gateways act like bridges between a network and an ISP's router hardware. The solution won the Comparison and almost won

us over entirely, but its lack of Network Address Translation (NAT) support is a significant limitation. NAT is useful for smaller offices that don't have their own class of addresses—or any size office that doesn't want to broadcast their IP addresses over the Internet—and its use is on the rise. Both the Check Point and Isolation solutions offer NAT support to some degree.

This solution's lack of NAT support means that it works only at locations that have legal, static IP addresses. Of course, obtaining an additional range of IP addresses and implementing it across your remote sites is an administrative headache. TimeStep plans to support NAT in the next release (slated for early December) when it will integrate Check Point's Firewall-1 modules

with the Permit gateways.

Policy problems

Most tunneling and encryption devices, including TimeStep's Permit gateways and Isolation's InfoCrypt Server, do not integrate well with existing firewall policies because they indiscriminately encrypt all application-layer information, such as HTTP and FTP.

Benchmarks

Virtual private networks nibble on performance but don't bite

We benchmarked the performance hit each VPN solution had on five file transfers (four .GIF files transferred via FTP and one ODBC database request sent via HTTP) and compared it to unencrypted performance. To our delight, performance degradation was negligible; anything less than a 10-percent slowdown was acceptable.

Check Point firewall solution

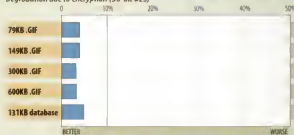
Degradation due to encryption (56-bit DES)

**ANS ISP solution**

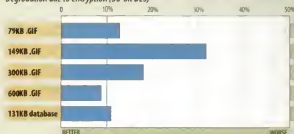
Degradation due to encryption (64-bit RC4)

**TimeStep hardware-based solution**

Degradation due to encryption (56-bit DES)

**Isolation software-based solution**

Degradation due to encryption (56-bit DES)





Customers can submit their orders directly on the Web, then go back and shop for more.

The GiftFinder sorts through hundreds of items to deliver a personalized catalog.

The Sharper Image Web site, built with WebObjects software, gives customers several ways to shop.

How The Sharper Image is making over 1,000,000 visitors a day feel like they own the place.

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Circle 6 on reader service card

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■ **Isolation Systems Ltd.**
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■ **TimeStep Corp.**
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COMMENTS?

If you have questions or comments about this Comparison, contact Stuart McClure at stuart_mcclure@info-world.com. Letters may be excerpted in the To the Editor section.

COMPARISON

If your company limits outbound HTTP traffic (after hours, for instance), TimeStep's box would not be able to maintain that policy. Traffic from a Permit gateway would pass encrypted, and therefore uncontrolled, through your firewall.

These limitations aside, installing gateways and the SNMS software, which includes a certificate authority, and then certifying all of the hardware was fairly easy. Once this is completed, the SNMS software offers clear point-and-click configuration and certification functions for all of the TimeStep hardware, regardless of location.

Like the other solutions, it took very little effort to administer TimeStep's encrypted tunnels. The SNMS shined again with its easy-to-read hierarchical layout that visually organizes machines and gateways involved in the tunnel. However, we couldn't easily distinguish gateway relationships.

Reams of schemes

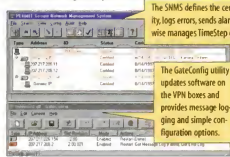
TimeStep's major security limitation was its reliance on 40-bit or 56-bit DES,

both of which have been acknowledged as marginal security. Company officials said they will support Triple-DES and DESX by early 1998. Otherwise, TimeStep's security features are adequate. It has its own certificate authority, but TimeStep plans to eliminate this and support Entrust Technologies' certificate authority, which will allow for integration with existing Entrust-enabled products.

Unlike the ANS solution, this solution does not allow cross-certification of certificates. TimeStep said that it will solve that problem by providing X.500 directory support in the upcoming release. The X.500 support will enable cross-certification with any X.500-compliant certificate authority that appears on the market, such as planned offerings from VeriSign and Microsoft.

Key management is currently han-

dled by TimeStep's proprietary mechanism, and dynamic rekeying is available at intervals as short as 10 minutes or as long as two months. Unfortunately, this option is accessible only via direct serial connection to each gateway, which



makes it difficult to adjust once a box has been remotely deployed.

TimeStep's December release should be fully IPsec-compliant. At that time, the authentication header, encapsulating security payload header, and the Internet Security Association and Key Management Protocol/Oakley Key-

management and key-establishment protocols will be implemented. The goal of IPsec compliance is interoperability with vendors such as Cisco, Check Point, and Raptor.

TimeStep plans to offer an API tool kit that lets you use alternative encryption algorithms such as International Data Encryption Algorithm or Blowfish.

Looking good

GateConfig, TimeStep's GUI-based configuration client, is a terrific all-in-one configuration and management product. In terms of management, it handles restarts, logging, software updates, and small configuration changes. All of these features are elegant and easy-to-use, except for the software-update component. To update a Permit gateway, we had to separately send three files to it, then reboot the box after each download.

Like the other solutions, security violation detection is limited to logging; you cannot detect tunnel intruders.

ANS ISP solution

The components

- Virtual Private Data Network (VPDN) Services

Because VPDN Services are available through Advanced Network & Services' (ANS') points of presence, we had to choose between migrating our existing tunnel environment from another ISP to ANS, or incorporating a second Internet connection at our main office to accommodate encrypted traffic. The former solution required a large number of difficult configuration changes, so we chose the latter.

As part of its VPDN Services, ANS will order and test the WAN circuits from an appropriate local provider and long-haul carrier. ANS promised deliv-

ery of the circuits within six weeks, but due to equipment problems at the long-haul carrier, it took nine weeks. Late delivery was one of the few pieces of this solution not totally within ANS' control, but it hurt its score nonetheless. It's one of the potential pitfalls of outsourcing service. We also felt less than charitable because ANS' response to the delay often bordered on finger-pointing and otherwise ducking of accountability.

Hands off

The problems were easily forgotten when ANS began implementing the VPDN Services. As we hoped, this solution shined in our Manageability category. ANS administers its WAN equipment and virtual private network (VPN)

box, upgrades the software, and troubleshoots problems. Instead of being our headaches, these chores were ANS'.

ANS sent an IBM support engineer to our site to install the hardware. Then after working with the company on initial IP addressing issues, we could literally sit back as they worked remotely from a network operations center (NOC), in Ann Arbor, Mich.

ANS handles most management tasks from the NOC via dial-up connections to the WAN equipment. We think an IS manager's only recurring responsibility would be pursuing daily and weekly reports of each connection's performance.

Minor software upgrades are handled online; the encryption device takes less than two minutes to reboot.

For major upgrades, ANS ships a new unit. The bottom line: ANS promises that your VPN will be available at all times.

Remote firemen

We were curious to see how ANS would handle a crisis from halfway across the country. In theory, if a device or interface goes down, ANS sees the problem when it happens and immediately calls to report it.

In practice, the system worked extremely well. To test ANS' responsiveness, we pulled the LAN cable from its hub at one of our sites. ANS spotted the problem immediately and reported it within minutes. ANS' performance was impressive — and absolutely necessary if VPN services are outsourced.

In terms of encryption, most of ANS' features are proprietary, although it intends to embrace the IPsec standard completely as soon as it is solidified.

ANS' default domestic encryption is 128-bit RC4, but it also offers 64-bit RC4, which is what we used in our tests. Tunnels are a proprietary implementation using a form of User Datagram Protocol.

ANS' proprietary key-management and key-exchange solution uses the Open Shortest Path First protocol to distribute the keys. Although this solution is proprietary, its form of key exchange has been available for three years and has some real-world experience under its belt.

One big limitation in ANS' security is its lack of support for digital certificates. ANS plans to support a form of digital-certificate authentication next year.

A note about the ANS ISP solution

By Stuart McClure

We knew the ANS solution would be unique. Since moving to solutions-based Comparisons last year, we've come close to testing and scoring a service provider numerous times. This analysis of virtual private networks (VPNs) was a natural place to pull the trigger: IS shops are increasingly looking to outsource network tasks that lie beyond a company's walls.

Very quickly we discovered how biased our testing structure is against outsourced solutions. Because ANS' network operations center, in Ann Arbor, Mich., handled nearly all of the administration and management of its VPN, we struggled to fit the

company's performance into our product-centric Report Card categories.

But in a larger sense, our experience paralleled the dilemma managers face when considering whether or not to outsource. We were initially nervous about relinquishing control of our WAN services to a third party but rested easier once the VPN was running. We remembered what a successful outsourced solution offers: hands-off simplicity that lets you forget your network is even there.

We talked with an ANS customer who, like us, reported a lack of availability for some services and a bewildering case of finger-pointing on ANS' part. In his case, this even included ANS blaming perfor-

mance problems on traffic generated by the company's parent, America Online. Even in a single-vendor solution, an "it's-not-my-problem" attitude can prevail.

The reader also had problems with ANS that we didn't. For instance, early-hour updates caused his servers to be down longer than promised. The reader said that although switching to a VPN has saved almost 25 percent in overall costs, he would trade those savings for one trouble-free week.

Taken together, the reader's problems and our testing experiences illustrate how risky it is to expect a consistent level of service from any provider. Don't base an outsourcing decision on a single third-party analysis — an unhappy client's or good old *InfoWorld's*.



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☐ 7 - 14 days ☐ 31 - 60 days

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1. Are these evaluation units?

- ☐ No ☐ Yes

2. How many systems will you be purchasing in the next 6 months (including evaluation units)?

SYSTEMS VENDORS

5. This is a quote for:

- ☐ Servers ☐ Notebooks ☐ Desktops/Workstations

6. Select vendors: (Write in code)

- (A) ALR (D) Gateway (G) Micron (J) Toshiba
(B) CSS Labs (E) Hitachi-PC (H) NEC (K) Umax
(C) Dell (F) IBM PC Co. (I) Sun

7. How many units are you planning on purchasing?

8. What CPU do you want installed?

9. How much RAM do you want installed?

10. What type of hard drives do you want installed?

- (A) SCSI (B) IDE (C) Other

11. What capacity hard drives do you want installed?

12. What type of video do you want installed?

- (A) SVGA (C) Active Matrix VGA (E) Other
(B) VGA (D) Passive Matrix VGA

13. What peripheral devices do you want installed?

- (A) Floppy (C) SCSI (E) Sound Cards
(B) CD ROM (D) Tape Backup (F) Other

14. What operating systems do you want installed?

- (A) MSDOS (D) Windows NT (G) UNIX
(B) Windows (E) OS/2 Warp
(C) Windows 95 (F) NetWare

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SO WHERE DOES IPX FIT IN?

By Lori Mitchell

GIVEN THE LARGE INSTALLED base of IPX networks, you may be wondering how they fit into virtual private network (VPN) scenarios on the IP-only Internet. We didn't ignore the issue during

testing, but many of the vendors we included do not support IPX out of the box. However, that doesn't mean that your IPX network can't take advantage of the security and lower costs offered by VPNs.

Of course, if your company has decided to migrate its infrastructure to IP, you're in luck.

If they haven't, one option is a hardware gateway to convert IPX traffic to IP. Another choice is installing tunneling software from Novell or Microsoft to encapsulate IPX traffic inside IP packets. In both cases, you won't have to make client-side changes such as adding IP stacks, and you will leverage ex-

isting NetWare investments.

Since Version 3.11, NetWare has included tunneling support, although this feature does not include encryption. Installing this feature on NetWare server is a good choice for small to medium-sized networks. However, a better option has recently arrived. Novell's Border Manager offers VPN tunneling with end-to-end proprietary encryption.

CLOSER TO HOME. As mentioned, the solutions in this Comparison offer limited IPX support, usually as an add-on feature. Check-Point's FireWall-1, Version 3.0, allows IPX packets across its VPN but it blindly does so; that is, without inspecting them for viruses or other undesirable content.

TimeStep's Permit gateways do not support IPX by themselves, and the company suggests that running multiple protocols brings up management issues that shouldn't be overlooked; dual stacks are difficult to maintain on a VPN.

Advanced Network & Services (ANS) offers IPX support with its Virtual Private Data Network Services, although many of its customers are migrating to IP. ANS suggests that IPX uses unnecessary bandwidth for a WAN environment and has limited remote capabilities. For customers too heavily invested in IPX to migrate, ANS will tunnel and encrypt IPX traffic, monitoring the connections similarly to its IP services.

Finally, Isolation Systems says that its IPX customers that want to remain on IPX typically use a gateway for encrypting IPX to IP.

Isolation (from page 92)

til they expire or are revoked.

To verify that packets were indeed encrypted, we captured packets, but we saw that there was no header information on them.

It turned out that Isolation will not fully implement Internet Security Association and Key Management Protocol (ISAKMP)/Oakley until later this month. At that point, Isolation will use the encapsulating security payload (ESP) and authentication headers in VPN traffic, and customers will have a choice of Isolation's key-management scheme or ISAKMP/Oakley. Under ISAKMP/Oakley, InfoCrypt will use ESP and authentication headers, yielding IPsec-compliance.

ISAKMP/Oakley support will also provide keyed and Hashed Message Authentication Code header options and give InfoCrypt the capability to communicate with non-Isolation VPNs, such as FireWall-1.

Isolation said it does not plan to implement the Secure Key Management Protocol. However, InfoCrypt is fully compliant with X.509, Version 1.0. For cross-certification, InfoCrypt uses a proprietary mechanism that issues X.509 certificates very similar to Entrust Technologies' certificates.

Another imminent upgrade is the all-important NAT support for Windows NT. During our testing, we had to use NAT on the router, which forced us to use difficult-to-configure static routes and secondary IP addresses.



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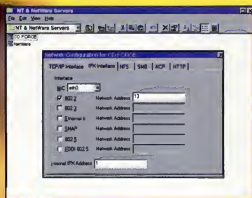


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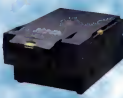
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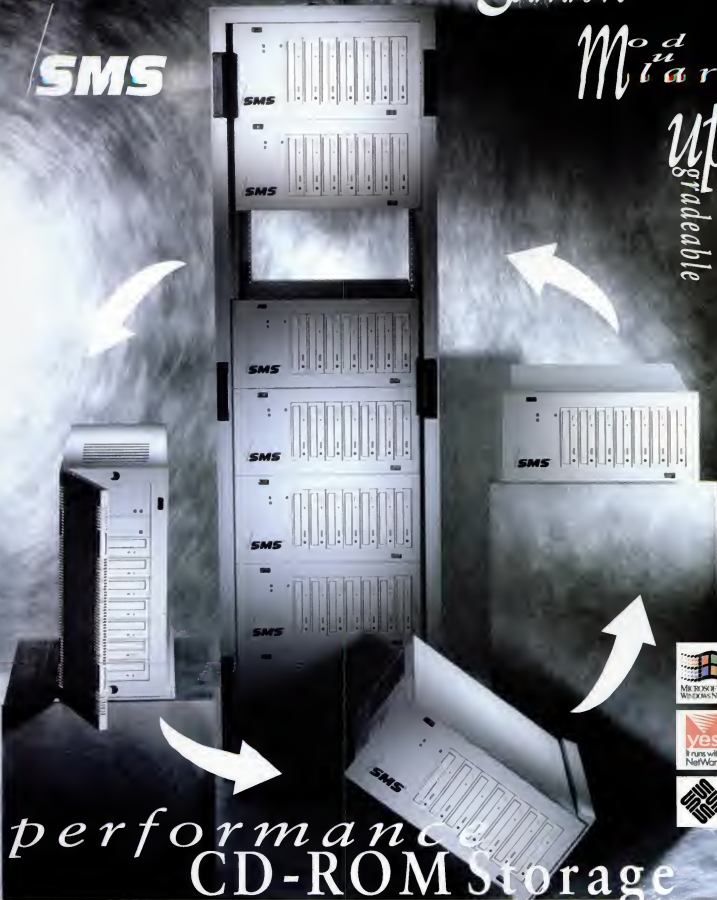
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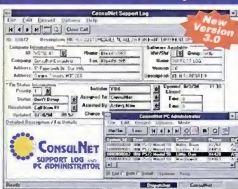
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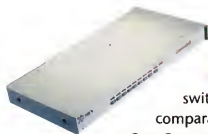
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High availability

Demands for uptime push high availability into mainstream

By David Baum

Not so long ago, high-availability systems were only justified for expensive, mission-critical applications. Today the price of high-availability systems and the definition of mission critical have changed to bring high availability into mainstream business use.

"With the rise of the Internet, we are moving toward a 24-hour economy," says Tom Thibault, president at Thibault Associates,

a systems integrator specializing in financial and government applications, in Pleasant Hill, Calif. "User demand for high-availability systems is reaching proportions never seen before in the market."

Where big-league high-availability systems previously cost \$1 million or more, companies can now integrate extremely reliable solutions ranging in the \$250,000 to \$300,000 price range, Thibault adds.

"What used to be a highly customized technology is now being offered by vendors out of the box at affordable prices," Thibault says.

Thanks to this downward cost spiral and the entrance of PC companies and Intel into the

Arrival of PC vendors and specialized software are making formerly exotic systems accessible

debatable," says Phil Sullivan, marketing manager for clustering at IBM's RS/6000 division, in Somers, N.Y. "For better or for worse, computers are irrevocably woven into the essential fabric of our society. People are expecting to go home and connect to their banks at 8 p.m."

Sullivan points to a 1996 study from Contingency Planning Research (CPR), in Livingston, N.J., that demonstrates the downside of downtime. CPR found that the financial impact of a mission-critical computer going down for one hour cost the average stock-brokerage company \$6.5 million, a credit-card operation \$2.6 million, and an airline-reservations center \$90,000 in losses. As companies launch Internet-commerce sites, backup is critical to ensure ongoing operations, experts say. Yet an IBM study found that only 8 percent of 226 business managers said they had a disaster-recovery system in place.



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MAINFRAME HERITAGE. High availability began in the 1970s with mainframe systems, which support high uptime as part of their inherent design. These stalwart computers have always had plenty of resiliency built into the system through standard features such as redundancy and memory protection.

Today, high availability dominates the midrange computing markets and is even entering the PC realm. This downward trend began in the mid-1980s when Digital began offering clustered high-availability solutions on its VAX/VMS computers. Digital's cus-

tering software was designed to recognize when outages occurred and recover computing facilities and data based on a set of complex parameters.

"[High-availability] solutions in the past consisted of a group of two or three programmers creating a custom solution for two computers to talk together," explains Christopher Radzik, president at Unit Systems, a systems integrator company in Addison, Ill. "There were no off-the-shelf solutions. Today the computer vendors are doing the work by building [high availability] into the hardware and operating system components. Vendors provide automated fail-over, external arrays, redundant power supplies, and hot-swappable components right out of the box."

Unit Systems recently helped a picture-tube manufacturer design a high-availability architecture to support round-the-clock data collection from its factory-floor process controllers. They used NCR's WorldMark 4300 Enterprise Servers and NCR LifeKeeper cluster software with a shared disk array to achieve a 24-hour, seven-day-per-week operation.

"[High availability] is imperative, because if the system goes down it affects local plant

LYCOS TURNS TO CLUSTERING SOFTWARE TO ENSURE AROUND-THE-CLOCK SERVICE

Internet-based businesses are one of the biggest catalysts for high-availability systems. The reason is simple: Close down the server and you close the doors to the business.

That's why Lycos, whose popular Web site serves more than 100 million Internet requests for information each month, is banking on clustering software to keep its Internet services up and running around the clock.

"We never could have fore-

seen such rapid expansion," says Sangam Pant, vice president of engineering at Lycos. "Keeping up with this huge volume of online activity is an ongoing technical challenge."

Based in Framingham, Mass., Lycos offers Web users free access to one of the world's most popular Internet search and retrieval engines. The company is the exclusive licensee of the Lycos Spider technology, originally developed at Carnegie

Mellon University and first made available to Internet users in October 1994.

The search engine is fast and efficient, but it makes crushing demands on the underlying Web servers and storage devices. Lycos wanted the high throughput and memory potential of a 64-bit server platform, which led it to the Digital Alpha-Server series.

"In the 64-bit world, data-
> LYCOS page 110

productions and data that is being fed to other business and mainframe applications," Radzik stresses. "They needed a fully lights-out operation."

GETTING HIGH. High availability can be achieved using many different techniques involving both hardware and software. It can be based on a cluster of processors with fail-over software. Alternatively, high availability can be achieved with a single processor with sufficient redundancy, where fail-over is controlled by a combination of the operating system and special hardware features, such as dual disk drives.

Although high-availability systems are primarily software solutions with supporting hardware, fault-tolerant solutions are the opposite: hardware solutions with supporting software. Tandem employs a "shared-nothing" system that employs dual processors carrying out every task simultaneously. When a fault is noted on one processor, it is reported to the other processor, where the task continues without interruption.

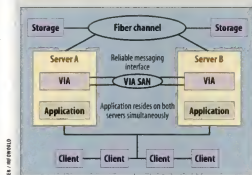
This type of near 100 percent reliability is only required in a few high-end applications. "Most commercial environments consider it good enough if a high-availability system fails over in 3 or 4 seconds with no data loss," says Margaret-Ann Bolton, Alpha Server marketing director at Digital, in Maynard, Mass. "That's what the bulk of the market is looking for."

Companies are now looking for redundancy on PC-based Novell NetWare servers and Windows NT servers as well.

"Even Windows NT is achieving clustering capabilities with Microsoft's Wolfpack technology," explains John Oltsik, an analyst at Forrester Research, in Cambridge, Mass. Wolfpack is a high-availability solution for Intel-based processors. Wolfpack, which is expected to ship this month, will initially support two-node clusters and then move on

Virtual Interface Architecture

The Virtual Interface Architecture (VIA) for System Area Networks (SANs) defines specifications for clusters that provide both high availability and better performance by running a single application across two servers.



to support larger clusters.

As Wolfpack penetrates the PC market, even small businesses will be inclined to purchase high-availability solutions for mail servers, Web servers, and other common front- and back-office systems, adds Dennis Deluke, vice president of advanced technologies at Computers for the Professional, a software developer that builds vertical solutions for the pharmaceutical industry, in King of Prussia, Pa.

"Within the next couple years you will be able to hook two PCs together with Wolfpack and have a very inexpensive cluster," Deluke says.

Tandem already introduced Intel-based systems in an effort to make its technology more affordable, but its acquisition by PC giant Compaq could blow the low-end market for high-availability solutions wide open. Eckhard Pfeiffer, president and CEO at Compaq, says the two companies will focus on bringing fault tolerance to a wide range of

computing devices, including everything from handhelds and portables to networked desktops and workstations.

Although high-availability clustering is well-established with Unix vendors, other PC vendors, such as Dell, are also pushing ahead.

Chip giant Intel, with Microsoft and a number of hardware vendors, is working out the specifications for its Virtual Interface Architecture. The specification, which is expected to be included in Compaq systems in mid-1998, evolves the technology from two-node fail-over to "parallel application clustering," which is more reliable and provides better performance. (See graphic.)

Deluke says he believes that the spread of mobile computing, 1-commerce, and 24-hour, seven-day-per-week customer-service requirements are all causing a burgeoning market for high-availability solutions.

"The electronic office is finally becoming a reality," Deluke says. "That brings with it a corresponding increase in our reliance on the computer systems that make the office tick."

Ten years ago, if a system went down, it only interfered with one small portion of the work people were doing, Deluke notes.

"Today, even if the e-mail server goes down, it is a crisis. Access to meaningful, business-critical processes and application data is suddenly cut off," Deluke says.

Rising consumer expectations have also driven the demand for high-availability technology, such as the effect that automated teller machines have had in the banking industry.

"Bankers knew that consumer acceptance of ATM terminals was going to hinge almost entirely on the reliability of those machines," says Jon Howe, chief technology officer at ACl, a company specializing in Tandem fault-tolerant solutions, in Omaha, Neb. "That meant that the computer systems behind them had to be up all of the time."

Meanwhile, globalization is bringing the requirement for high availability to the forefront. Tom Foley, president at Baystate Computer Group, a company specializing in high-availability solutions for Sun Microsystems' servers, in Boston, says that Baystate needs to be online around the clock to support its worldwide customers.

"Our off-site engineering and support group needs access to our system at all hours of the day to troubleshoot problems for our customers in different time zones," Foley says. "We don't have the luxury of running only during local business hours anymore."

DISASTER RECOVERY. Other companies think of high availability primarily as a means to protect their data in the event of a disaster. Digital's Bolton cites the bombing of the World Trade Center as a devastating event that in effect ruined several businesses because both their data and their data backups were destroyed.

"About 70 percent of the smaller businesses that were in those buildings never

DEFINING TERMS

The language of high-availability systems can be confusing because there are several degrees of uptime that can be assured depending on the technology employed.

Ron Reinick, a researcher at the IBM Haifa Research Lab, in Haifa, Israel, defines a basic-availability computer as a system that is designed, implemented, and deployed with sufficient components to satisfy the system's functional requirements — and no more. Such a computer will deliver the correct functionality so long as no faults occur and no maintenance is performed.

A high-availability system, by contrast, meets the same requirements as a basic-availability system but also has sufficient redundancy in components (hardware, software, and procedures) to recover from certain defined faults or unplanned outages. The aim of a high-availability system is to recognize when the system goes down and recover the application and the data as quickly as possible. High availability attempts to avoid single point of failures in the system by making them redundant.

The next rung up the ladder above basic availability and high availability is continuous availability, which extends the high-availability definition to include planned outages (such as upgrades, backups, and location changes), as well as unplanned outages.

The top rung on the ladder is known as fault tolerance, a technology pioneered by Tandem Computers, which remains the market leader for fault-tolerant systems. Whereas the strategy of a high-availability system is to recover from an outage quickly, the strategy of a fault-tolerant system is to prevent the mission-critical system from coming down in the first place — at all costs. Tandem began by addressing an eclectic market of do-or-die applications such as NASA-mission computers, but today its customers include everything from large stock-trading applications to shop-control manufacturing controllers.

recovered because all of their systems were lost," Bolton says. "The way to avoid this is with systems that can duplicate all your applications and data off site by failing over to another machine."

French bank Credit Lyonnais implemented such a system at its Paris office just in time to circumvent a disaster.

"After a major fire in their IT department, we were able to help them save all of their data, because the processing failed over to other systems located miles and miles away," Bolton adds.

But whether the motivation is 24-hour, seven-day-per-week application availability, global expansion, or disaster insurance, one thing is sure: high availability is increasingly becoming a requirement for doing business.

"In as little as five years, highly available system features will become as much of a commodity as PCs are today," Oltsik concludes. "When you look at the way our everyday activities are becoming increasingly dependent on computers, guaranteed uptime is only a matter of time."

David Baum is a free-lance writer based in Santa Barbara, Calif.

Lycos

Continued from page 109

base-management systems can operate with very large data caches, moving transactions to memory that would otherwise require disk I/O," Pant explains.

Lycos has installed several AlphaServer 8400 and AlphaServer 4100 enterprise systems. In addition to multiple Alpha Standby workstations, all running the Digital Unix operating system. Digital helped configure the Alpha systems for round-the-clock operations, leveraging high-availability features such as auto-restart, hot-swap storage, and redundant power supplies to give Lycos an extremely reliable production environment.

Lycos is now planning to install Digital's high-availability TruCluster software to en-

sure its systems are always available to receive Web visitors. TruCluster Available Server software achieves optimal system uptime by protecting each computing device from a single point of failure.

If a CPU, SCSI I/O device, or network fails, Available Server directs its workload to a second system, which continues to provide services to Web users until the initial hardware failure is diagnosed and repaired. Fail-over is essentially transparent, ensuring uninterrupted access to resources.

TruCluster Available Server operates in one of two modes: Concurrently Active or Master/Standby. Concurrently Active configurations divide the cluster's workload among all servers in the environment. In Master/Standby mode, one server remains idle, ready to immediately pick up the workload of another member in case it fails.

This ensures continuous application performance.

Available Server will allow Lycos to cluster as many as four Alpha systems together as a single, fault-resilient environment. Servers can run concurrently for maximum processor utilization or as redundant servers in "hot" standby mode for optimized application performance.

Users can be relocated from one server to another without interrupting everyday operations. And servers and disks can be easily removed from the environment for maintenance, load-balancing, upgrades, or planned shutdowns.

Lycos finds itself in an extremely competitive segment of the market, but the company remains one of the Web's most visited sites. With a high-availability solution installed, users will be ensured that Lycos is always open for business.

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— From an anonymous reader who apparently doesn't feel quite empowered enough

WHEN I LIVED in Washington a decade or so ago, one of the local banks started calling itself The Most Important Bank in the Most Important City in the World.

Needless to say, I took my business elsewhere — I didn't feel important enough to do business with them and was pretty sure I was not important enough for them to give me the kind of service I wanted.

Self-importance is a geographic hazard in Washington. It is also an occupational hazard for executives, many of whom exhibit thinly disguised contempt for staff-level

employees. Managers in companies afflicted by the executives-are-royalty culture learn that self-important arrogance gets them ahead. Sad to say, in some companies it does. You have alternatives, though.

For example, shortly after I departed from my electric-fish studies in graduate school to pursue an actual income, I found myself having to present a system design to the senior vice president of manufacturing. I'd only interacted with corporate executives a couple of times up to that point in my career. From my perspective, this was a big deal.

Nervous, I arrived a bit early, expecting to sit outside of his office until the rest of the attendees showed up.

"Go on in," his secretary said, and there I was, alone with the No. 2 guy in the company.

After we introduced ourselves, he held up a black book and said, "I found the most remarkable thing in the library the other day."

I asked him what it was.

"It's a Ph.D. thesis from an anthropologist

who lived with the Sioux Indians 100 years ago," he said. "It's just amazing!" And with that he proceeded to put me completely at ease as he told me about what this long-dead anthropologist had learned.

After the meeting (which went well, in part because this gentleman extended himself on my behalf), I learned some other things about him: that he had literally started at the bottom of the company and then proceeded to work his way up; that he was responsible for negotiating with a dozen bargaining units as a regular part of his job and routinely had to make very difficult decisions; and that he was respected throughout the industry.

I learned two other things. Here is the first: Not a single employee had a single bad thing to say about this executive.

Not one.

Can you make that claim?

Here's the second thing I learned: Abusive, ill-tempered, bad-mannered, and politically driven managers didn't succeed in his organization. With no disrespect to any other group I have known in my career, this team, with no written mission statement, vision, or other chartering document, was the most focused, mission-driven, aligned collection of managers I've ever worked with.

It's common for groups with charismatic

leaders to lose their way when their leader retires or moves on. This group continued to have the same chemistry through at least two successors (both promoted from within) and at least two complete turnovers in managerial staff. For all I know it still does.

I've since worked for and with screamers, schemers, liars, and back-stabbers. The first time one of these situations happened I had no idea how to deal with it.

But I had learned the key facts: that lots of managers and executives are excellent leaders. That it is possible to create an organization in which everyone focuses on the job instead of being out to follow a personal agenda. That you can, as a company leader, create an environment in which helping the company succeed is the best route to personal success.

I have also heard colleagues say things such as, "You do not become a manager to make friends."

Maybe not. But I know from experience that it is possible for you, like the subject of this week's column, to be a highly effective leader and still be a mensch.

Bob Lewis is an analyst with Perot Systems Corp., in Minneapolis. Send e-mail to robert.lewis@ps.net, and visit his forum on InfoWorld Electric (<http://www.infoworld.com>).



EIS plus a database equals efficiency gains

■ Welch Allyn's move to decision-support tools cuts closing time in half

By Margaret Steen

GO INTO A PHYSICIAN'S office, and Welch Allyn's precise instruments for taking blood pressure and heart rate are probably there. But back at the home office in Skaneateles Falls, N.Y., the company lacked such precision.

"We were using a hodgepodge of systems and Lotus spreadsheets," says Kevin Cahill, vice president, controller, and treasurer for the 2,000-employee company. "It took tons and tons of paper to support managers throughout the company."

Managers who wanted sales data had to ask the financial staff, who would search several databases and then, via e-mail, send the information to the managers. Then they had to analyze the data themselves.

Welch Allyn managers needed worldwide access to data on finances and sales, including an analysis system that would let them review up-to-date sales information by product line, customer, or region. The \$300-million company also needed a reporting system that would support future worldwide growth.

Cahill's group's first goal was to replace the spreadsheets and paper with an Executive Information System (EIS). The group chose

Comshare's Commander EIS and Commander FDC, which was purchased by Welch Allyn in June 1993. Commander EIS has since then been replaced in Comshare's product line by Commander Decision. Commander FDC, whose name stands for Financial Data Control, is a Windows-based data collection and reporting application.

"With the financial EIS application, what we have is a shared database on a Windows server," says Laura Mock, a financial systems analyst with Welch Allyn. Users can copy the 30MB database onto a laptop for use away from the office.

LONG-TERM NEEDS.

But Cahill and his group were looking for a long-term cure for the company's problems, not a Band-Aid. Although they were glad to replace their paper-based reporting system, they also wanted a system that could grow.

In June 1995, they bought Arbor Software's Esbase database to use with Comshare's products. They used Commander Execu-



WELCH ALLYN'S Kevin Cahill and Laura Mock replaced spreadsheets and paper with EIS.

View, a viewing and reporting facility embedded in Comshare applications that they acquired during the first phase of their project, with Esbase for sales analysis.

Welch Allyn also bought Commander Decision, decision-support software that includes both Comshare's Detect and Alert technology, and Commander ADL, which is

used to collect, cleanse, and manipulate data.

By June 1996, Cahill and his group were working on an application to give them worldwide sales and reporting capabilities using Esbase and Detect and Alert. Today, 10 pilot users are testing the Detect and Alert system, which gives managers easy access to sales but also works proactively.

"The computer system itself will go out and search for issues that we ought to be aware of and potentially ought to be taking action on," Cahill says.

DATA CLEANUP.

"When you put in a system like this, you find that the raw data in many cases is not as accurate as you thought," Cahill says. "We have been cleansing the data from the transaction systems and in some cases completely re-engineering the way the data is organized."

Cahill's group used Commander ADL to cleanse the data before loading it into Esbase.

Cahill estimates the total cost of the project at hundreds of thousands of dollars. He says it's too early to know how much money the project will save, but it has already saved the staff time. Monthly financial closings, which used to take 10 days, now take about half that long.

But Cahill says the most important point is that the company is more efficient.

"It was our belief that if people did not have access to meaningful data, there were opportunities that we were missing," Cahill says. "People had incorrect information, nonexistent information. Today people have become more productive."



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Book Reviews

Headed to business school? Take a detour to a bookstore

Your local bookstore or library contains a wealth of information to aid you in your search for, and subsequent application to, business schools. Some books take you through the admissions process from the very beginning; others offer detailed rankings of the country's most highly regarded schools. You can also find books to help you prepare for the Graduate Management Admissions Test, or GMAT. Starting next month, the GMAT will be given only on computers. The new version of the test is called a Computer Adaptive Test, or CAT, because the computer keeps track of your score as you go along and adjusts the difficulty of the questions accordingly; test takers may need new strategies to do well.

For reviews of books to help you find your way to business school, go to [InfoWorld Electric](http://www.infoworld.com/printlinks/) at <http://www.infoworld.com/printlinks/>.

Choosing and getting into business school
Business Week Guide to the Best Business Schools. By John A. Byrne
The Insider's Book of Business School Lists. By Mark Baker
Kaplan Getting Into Business School. By Alice Murphy and Shari Halmer Lewis
Peterson's Guide to MBA Programs
The Princeton Review Student Advantage Guide to Business Schools. By Nedda Gilbert

Getting through the GMAT

The Princeton Review Cracking the GMAT CAT

By Geoff Matz

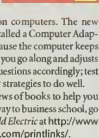
Kaplan GMAT 1997-98

By the Staff of Kaplan Educational Centers

Attending business school

Business School Companion

By H.S. Hamadeh and Andy Richard



GRADUATE EDUCATION

Not all MBA programs are alike

By Margaret Steen If you've decided that the next step in your career is to get an MBA, you have plenty of company. About 90,000 people each year receive master's degrees in business administration

or in other management areas, and these degrees are popular with IT professionals who want to become consultants or move into management positions.

The popularity and variety of MBA programs complicate the choices potential students face.

■ **How does an executive MBA program differ from a conventional one?**

Executive and conventional MBA programs differ in format more than content, but that doesn't make the choice any less important.

Generally, conventional MBA programs require students to attend school full time, usually for two years. If you are trying to change the direction of your career or want a new job at the end of your program, this might be a good choice. Because employers generally aren't footing the bill for full-time programs, schools facilitate recruiters' campus visits.

"For a career changer, a regular MBA degree is a much better option because of the internship between the first and second years," says John Byrne, a senior writer for *Business Week*, in New York, and also author of the *Business Week Guide to the Best Business Schools*.

Executive MBA programs have evening or weekend classes to allow students to keep their full-time jobs. Employers are more likely to pay for these programs.

T.J. Harais, a consultant in Austin, Texas, got his MBA in May from the University of Texas at Austin. His program met every other weekend.

"I did not want to go full time because the opportunity costs

of getting out of the industry for two years were too high," Harais says.

■ **Is a technology-focused MBA the best choice for an IT professional?**

If you want to specialize in the management of technology, many programs will allow you to focus on

IT; some business schools, such as the MIT Sloan School of Management, are even offering separate programs in this area.

However, keep in mind that the point of going to business school is to learn about business.

"Your ability to advance is limited by your specialization," says Tom Howard, director of MBA programs at Daniels College of Business at the University of Denver, in Denver. "If you've got strong technical skills, increasing your management skills is going to be very important."

And in a high-tech area such as Austin, Harais says, even a general business program will involve a lot of discussion about the role of technology, because so many of the discussions are led by the students.

■ **How important is a school's reputation in making a decision?**

Although a degree from a top-ranked school will give your résumé a positive boost, other factors, including where a program is located and how closely it matches your interests, may be even more important.

"I wouldn't rely on rankings very heavily," says Nicole Chestang, vice president of the Graduate Management Admissions Council, an association of graduate business programs, in McLean, Va. "Students have got to do a lot more homework than picking up a magazine that bases its opinions on the opinions of employers and former students. Think about, 'What is it that I need to get out of this? What program is going to provide those opportunities for me?'"

For those who have clear goals in mind when they begin an MBA program, the degree can pay career dividends.

Harais used getting an MBA as a way to bridge the gap between his technical experience and the business roles he wanted.

"The fun part of this for me was trying to break into the business side of the technical world," Harais says. "You walk into a place and they see 13 years of technical experience, and they say, 'Why do you think you can run a business?'"

But with business school costing more than \$20,000 per year at the top schools, you need to know what you want to get out of it.

"Going to business school is a huge financial investment," Chestang concludes. "The opportunity cost of leaving your job or taking time out of your life to do it part-time, that's a lot."

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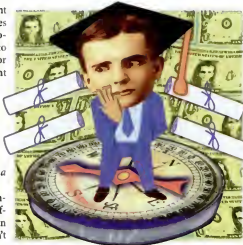
If you already have an MBA — or have decided against getting one — *Enterprise Careers* will explore other ways to continue your education. Send your comments and advice to Margaret.Steen@infoworld.com

THE CAREERS WEB HOTLIST

Professional IT organization sites worth checking out

- 1 **ACM** <http://info.acm.org>
The Association for Computing Machinery offers a site devoted to its research on computing and information technology. The Digital Library contains a wide selection of journals, magazine articles, and technical papers.
- 2 **SIM** <http://www.simnet.org>
The Society for Information Management provides resources for executive-level IT managers. Read a white paper on the Uniform Commercial Code or link to an informative Web site prepared by its Year 2000 Working Group.
- 3 **NPA** <http://www.npa.org>
The Network Professionals Association's site focuses on news and educational resources devoted to computer networking. Visit the Job Center, the Certified Network Professionals Directory, and Network Industry Links.

Send your URL suggestions to jim_battley@infoworld.com.



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Business Analysts

Lead the functional review, analysis, design and conversion of the customer's operations infrastructure. Perform gap analysis and develop the re-design requirements. Must have at least 3-5 years with large scale functional systems conversion projects, along with knowledge of A/P and A/R. Experience with work flow concepts and systems. Oracle Financials Application software experience required. AD #7432

Applications Systems Analyst

Develops complete applications systems specifications in support of conversion and client requirements. Requires at least 5 years of information systems experience in a client server environment, 4th generation programming languages (C, C++, Java, Visual Basic), Oracle Financials and Cooperative Development Tools experience required. AD #8093

Applications Programmer

Develop and maintain complex computer programs that support the A/P and A/R product offerings. Perform application coding, testing, debugging, documentation and implement conversion programs. Requires 5-7 years of programming experience (3 years in a client server environment); 4th generation programming languages (C, C++, Java, Visual Basic), Oracle Financials and Cooperative Development Tools experience required. AD #7661

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Programmer Analyst Oracle Tools

Use Oracle development tools to design, program and test complex applications, forms and reports. This will include identifying relational database design concepts; defining logical and physical database schemas; maintaining applications; and providing set-up and integration of applications. Qualified candidates will be proficient with Oracle Developer 2000 (reports and forms), C, and PL/SQL, and have 3+ years of Oracle development and dBase Management experience.

Programmer Analyst Oracle Supply Chain

Design, develop, implement and maintain Oracle-based software for supply-chain modules (Inventory, Order Management, MRP, BOM, VPI, Demand Forecasting, Production Planning). This will include defining system requirements, scope, and functionality; assisting Technical Writers with documentation and training manuals; and handling installation, integration and training. Ideal candidates will have 8+ years of related experience; a solid understanding of all phases of the development lifecycle; and broad knowledge of Oracle tools (Manufacturing, RDMS 6/7.0, SQLPLUS, PL/SQL, reports and forms).

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Senior Analyst/Programmer – Novato, CA (Job SP-KS)

Design, implement and maintain database applications relating to significant environmental projects and perform some network administration. Requires a BS in IS/CS (MS preferred) and 5-10 years related experience. Experience with UNIX and PC OS, database management, and Access, Oracle and/or Ingres is required. GIS skills are a plus. Experience with Visual Basic and Avenue programming is preferred.

Analyst/Programmers – Two positions available Novato, CA (Job AP-DS)

Develop complex computer programs and associated documentation for software applications supporting business functions in a creative Oracle environment. Work with users/IS personnel to analyze and design application systems, develop programs, test, document, implement and maintain applications. Requires a BS in IS/CS and 4+ years programming experience. Must have in-depth knowledge of programming languages, database systems, data communications, on-line/interactive systems, UNIX OS and SQL type tools. Oracle Financials experience is preferred.

Environmental Database Administrator – Raleigh, NC (Job EDBA-KR)

Solve complex data management and presentation problems interacting with technical groups. Requires a BS in IS, Geology, Chemistry or Engineering and 3-5 years related business experience in environmental data. Candidates must have a background in Oracle Workgroups, SQL and/or other client/server DBMS, as well as MS Access and environmental data management. UNIX system administration or Visual Basic programming experience is a plus.

Oracle Database Administrators – Two positions available Denver, CO (Job ODBA-SS) and Novato, CA (Job ODBA-KS)

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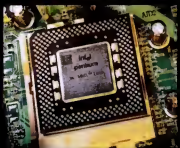
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Web application server

CORBA, cartridges power Oracle

THE BOTTOM LINE

Web Application Server 3.0 for Windows NT, Advanced Version

Enterprise settings that need to serve highly distributed and dynamic Web applications to end-users will find this Oracle solution robust. The product's robust scalability and fault tolerance combined with its strong transaction management support and server-side application capabilities give Oracle an edge over Kiva's competitive offering.

Pros: Capability to integrate with third-party Web servers; strong support for server-side processing with included Oracle and third-party application cartridges; capability to add more cartridges easily with included API; promotes communication between server-based components; open standards used for object handling and transaction management.

Cons: None significant.

Oracle Corp., Redwood Shores, Calif.; (800) 633-0796, (650) 506-7000; fax: (650) 506-7200; <http://www.oracle.com>.
Price: Standard Version: \$295 per CPU; Advanced Version: \$995 per CPU.

Platforms: Windows NT servers also available for Sun Solaris, HP-UX, VAX, Sequent, SGI, AIX.

Continued from page 1

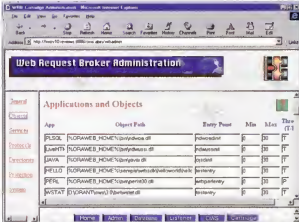
in the Unix editions of the same product. In addition, Web Application Server matches competing products, such as Kiva Software's Kiva Enterprise Server, in scalability and performance. Furthermore, Oracle outpaces the competition by providing more tightly integrated database and transaction management capabilities.

Web Application Server is available in two flavors—Standard and Advanced. I reviewed the Advanced Version, which includes more enterprise features such as transaction services, ODBC support, and the capability to run server-side processes across multiple distributed nodes.

Three components comprise Web Application Server: Listeners, Web Request Broker, and Cartridges. The Listeners (called daemons in the Unix versions) provide HTTP support between the clients and the application server.

The Web Request Broker, which complies with the CORBA object request broker standard, manages system activities during execution. This includes tasks such as load balancing across multiple servers, accessing server resources, and transaction management services.

► Read our review of Kiva Enterprise Server on InfoWorld Electric at <http://www.infoworld.com>.



THE WEB REQUEST BROKER ADMINISTRATION tool lets you easily access all the settings affecting your Web application environment.

Cartridges are server-based components that handle specific requests from end-users. Oracle provides some cartridges with the product, including those for support Java, Perl, Virtual Reality Modeling Language (VRML), and database access.

Several third-party vendors are also creating cartridges for the Web Application Server that serve a specific need, such as Portland Software's Ziplock Cartridge for software distribution.

I first put Web Application Server-

er's HTTP support to the test. Although this function resides within a Listener, the product can also receive HTTP requests from end-users via other Web servers, such as Microsoft's Internet Information Server (IIS).

When I accessed the Web Application Server through both the integrated HTTP and IIS, there was no difference in the experience from the client end.

As a developer, I was curious about the Interacard Exchange feature, which lets server-side processes talk to each other. I created an Internet-commerce application that enabled my customers to view, select, and order camping equipment via the Web.

I used a combination of server-side processes: I used the VRML cartridge to display cool 3-D images of the gear I was selling, the Java cartridge to drive the application, and the PL/SQL cartridge to provide access to my Oracle database for manipulating inventory and customer orders.

The development flexibility provided by the cartridges and the capability to communicate across multiple cartridges allowed me to quickly build a very powerful application.

Although I used the supplied cartridges, I liked the fact that Oracle includes an API that lets you create your own server-side processes.

I next decided to expand avail-

head created when translating between the native file system and the Unix file system slows performance. Still, the cross-platform file and print support will be a boon to those developing workgroup intranet applications, simplifying the process of getting content onto the server.

On the intranet side, Solaris includes Sun's Web server, e-mail, Network File System, and news services. Because all of these products come bundled, Solaris for Intranets is a one-stop shop for those just beginning to set up and deploy an intranet.

According to Sun, to support high-end applications such as Internet commerce, you'd probably want to add Netscape's Enterprise server to the mix.

We were a bit disappointed with Solaris for Intranets' installation process. Although the company

► **SOLARIS** page 130

Cartridges included with Web Application Server

Cartridge	Benefit
Java	Supports Java applications on the server
LiveHTML	Parses HTML documents with server-side "includes"
Virtual Reality Modeling Language (VRML)	Makes 3-D VRML available to developers
Perl	Runs Perl scripts
PL/SQL	Manages manipulation of Oracle databases
ODBC	Provides access to other relational data

ting was a simple matter.

Those who manage Web applications will appreciate how easy the product's browser-based Web Request Broker Administration tool is to use.

I easily configured cartridge communication and transaction services as well as authentication services. Web Application Server supports basic authentication as

► **ORACLE** page 130

Unix operating system

Solaris 2.6 for Intranets gives Windows NT stiff competition

By Stuart McClure
and Eric Hammond

TRADITIONALLY, Sunsoft's Solaris operating system has come in one flavor. With Release 2.6, Sun is moving in a new direction with its OS, targeting Solaris for specific markets.

We looked at Solaris for Intranets, which is the basic Solaris 2.6 server OS bundled with intranet server software, including a Web server, e-mail, news, and FTP services. (The two other editions are Solaris Server, shipping now, and Solaris Enterprise, which isn't shipping yet.)

Although clearly a first-generation product, Solaris for Intranets is a promising alternative to NT and IntranetWare for smaller workgroup intranets.

In addition to providing a Web server, Solaris for Intranets offers file and print services for Novell, Windows 95, Windows NT, OS/2, and Macintosh clients. This will appeal to administrators who need to support file and print services in a mixed-client environment.

Obviously, Solaris for Intranets doesn't perform as well as the Novell, Microsoft, IBM, and Apple OSes with larger files. The over-

Windows memory utility

QEMM 97 offers limited help for slow systems

By Joe Peschel

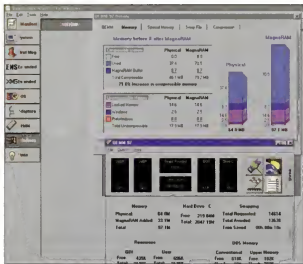
ALTHOUGH QEMM enjoys a solid reputation as a robust DOS memory manager, the current Quarterdeck release, QEMM 97, Version 9.0, does little to enhance its position because it doesn't offer any benefit for most Windows systems.

In this version of QEMM, Quarterdeck incorporates MagnaRAM, a Windows 95 compression utility, for speeding up your system. Other similar utilities, such as Helix Software's Hurricane, have failed to impress me in the past.

Not only did they sometimes fail to accelerate systems that really needed a performance perk, they often seemed to step on the brake and slow them down. (Synchron Software's SoftRAM 95 didn't do anything no matter what sort of system embraced it.)

I tested QEMM 97 on both a 200-MHz Pentium PC with 64MB of RAM and a 33-MHz 486DX PC with 16MB of RAM. On both systems, the DOS-based QEMM memory manager worked well. The Windows box garnered 14Kb more conventional memory than provided by the original configuration. The 33-MHz 486 system's conventional memory jumped from 602Kb to 626Kb, a nice gain.

Increasing the amount of con-



QEMM 97 DISPLAYS the improvements it creates, if any.

ventional memory, however, is seldom important any more unless you are running DOS (or Windows Program Information Files) applications that require plenty of conventional memory. In those cases, QEMM 97 works well, but I recommend disabling the MagnaRAM compression feature because it may slow down your system.

The reason for this is that QEMM 97's MagnaRAM attempts to accelerate Windows 95 by compressing memory and reducing the number

of swaps to the hard disk. My Pentium, however, with its 64MB of RAM, seldom runs out of memory. My system does frequently exhaust its Free System Resources (FSR), but MagnaRAM running under Windows 95 does nothing to increase FSR, nor does it claim to. However, when running under Windows 3.1, MagnaRAM does provide slight storage improvements on the order of 10 percent to 20 percent.

After I installed the MagnaRAM

component of QEMM 97 on Windows 95's boot-up, I noticed an increase in the size of the Windows swap file.

On my Pentium PC, the program created a 9.5MB swap file, although none of it was used. (Without MagnaRAM the swap file was 0 bytes.) And swappable memory, measured by Windows 95's System Monitor, increased from 12.2MB to 39.2MB.

During user and system idle time, MagnaRAM compresses memory so programs can load faster. But when I tried to open several files at once, performance actually slowed on both of my systems.

And the time needed to open individual applications, such as Microsoft Word and Excel and their associated files, improved from only 5 percent to 15 percent. Launching my HTML editor, which opened six hypertext files, caused a noticeable performance hit.

QEMM 97 also includes TurboLoad, which is designed to decrease the time needed to launch some 32-bit applications. This feature works well, but only if you have the recommended 24MB of RAM. Without that much memory, you're liable to see a slowdown.

QEMM 97 will definitely benefit systems that need a DOS memory manager such as QEMM. The

THE BOTTOM LINE

QEMM 97, Version 9.0

Pros: This product slightly accelerates Windows performance depending on the system, but it's hardly noticeable on fast systems, and even slows down some operations on 486 machines. QEMM 97 is a good bet for systems that need a DOS memory manager, however.

Cons: Includes QEMM DOS memory manager; can speed up some slow Pentium PCs.

Price: Inexpensive. The amount of Free System Resources of Windows 95 systems; speed increases almost unnoticeable; large memory requirement on Windows 95 machines.

Quarterdeck Corp., Marina del Rey, Calif.; (800) 683-6656, (813) 523-9700; fax: (813) 523-2391; info@quarterdeck.com; <http://www.quarterdeck.com>

Price: \$69

Platforms: Windows 95, 3.1, DOS.

MagnaRAM component, however, will be more valuable for low-end Pentium systems with 24MB of memory. Unfortunately, MagnaRAM will do little to increase the performance of PCs that really need a lot of speed, such as low-end 486 boxes with 8MB of memory.

My sincere and strong advice: Buy more memory.

Joe Peschel, a freelance computer journalist, covers security programs and other utilities for stand-alone systems. He can be reached at jpeschel@aol.com.

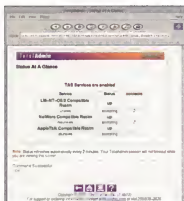
Solaris

Continued from page 129

to the ease with which the OS can be set up and configured, you still must manually enter commands at a prompt to get the installation process started.

Installing the base OS is easier and more intuitive than installing the intranet product. The installation for the base Solaris 2.6 product is the same as it was for Version 2.5, with a graphical interface that guides you through configuring the system. Configuring Solaris 2.6 was almost as easy as for NT. The intranet extension installation, however, involved using Sun's HotJava Web browser to install the needed components and proved much slower to complete. (Sun already is working on improvements to the user interface in both the installation and configuration processes.)

We easily set up the Novell, Microsoft, and Apple file and print services through the included Hot-



SOLARIS 2.6 FOR INTRANETS' browser-based configuration and management tool for file and print services does a fair job of keeping tabs on your users.

Java browser. The Web server also is administered through the browser, but we were disappointed that we couldn't start or stop the server from the browser. According to Sun, this start/stop capability is available, but we couldn't find it. Even the documentation mentions only scripts and command-line

control at this level.

Solaris 2.6 for Intranets is a step in the right direction for Sun: Providing a complete intranet solution at a price that's competitive with Windows NT offers hope for those seeking an alternative to Microsoft's proprietary solutions. And because Solaris for Intranets runs on both Intel and Sparc hardware, it gives sites flexibility in how they implement the operating system. If Sun improves the configuration and management issues, Solaris for Intranets will be an NT killer in the intranet space.

Enterprise platforms manager Stuart McClure and technology analyst Eric Hammond are both admitted Unix-heads. McClure can be reached at stuart_mccclure@infoworld.com. Hammond can be reached at eric_hammond@infoworld.com.

THE BOTTOM LINE

Solaris 2.6 for Intranets

Pros: Solaris 2.6 for Intranets offers a fairly easy, scalable OS for workplace intranet users while still accommodating existing NetWare, Windows, OS/2, and Macintosh clients who need file and print services.

Cons: Robust, scalable intranet platform; file and print services support for multiprotocol clients; browser-based configuration and management.

Price: Problematic installation; browser-based tools incomplete; user interface and usability needs polish to tempt non-Unix shops.

Sunsoft Inc., a division of Sun Microsystems Inc., Mountain View, Calif.; (800) 786-7638; fax: (415) 856-2114; <http://www.sun.com>.

Price: \$695 for Solaris 2.6 (five-user license); \$595 for intranet extension (five-user license); \$1,295 for unlimited users.

Platforms: Sparc- and i86-based machines.

Oracle

Continued from page 129

well as IP-based security and Secure Sockets Layer.

The product also provides a high degree of fault tolerance. During application execution, a separate process handles each instance of the application. If one occurrence of an application gets into trouble, other end-users will not be affected.

Oracle's Web Application Server offers an impressive array of features and functionality for creating scalable and reliable Web-based applications.

If you need to develop, deploy, and manage complex Web applications for a large number of end-users, Web Application Server is equal to the task.

Senior analyst Maggie Biggs (maggie_biggs@infoworld.com) specializes in application development and database products at the InfoWorld Test Center.



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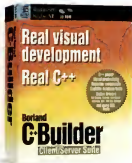
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PRODUCT REVIEWS

QUICK BYTES

Claris offers slimmer suite alternative; Transend modem breaks analog speed barrier

OFFICE PRODUCTIVITY SUITE

ClarisWorks Office 5.0, beta

Claris' forthcoming ClarisWorks Office 5.0 suite, which shipped last week, is a practical alternative to the behemoth suites from Microsoft, Lotus, and Corel.

At \$79, Claris' lightweight suite (the company calls it "slimware") provides the most useful features of expensive office suites but at a lower cost and with less complexity, appealing to both novice and advanced users.

The late beta version of the Windows package I tested included word-processing (the upgraded ClarisWorks 5.0), presentation-software, database, spreadsheet, graphics, and communications applications.

In ClarisWorks 5.0, the cornerstone of the suite is a new button

bar that allowed me to quickly open or switch between any of the applications, as well as between documents created using any of the applications. The button bar acts as a sort of command central, allowing even novice users to easily customize each document.

Novice users will also appreciate the extensive document-design help offered by ClarisWorks' Assistant, a wizardlike macro.

In addition, the updated word processor offers 175 pre-designed documents, Web-page templates, and 64 JIAN BusinessBasics documents.

New formatting features include an enhanced text ruler with tab



STARTING WITH THE opening menu, simple and easy-to-understand options permeate every aspect of ClarisWorks' improved Office 5.0 suite.

and margin guidelines, background textures, and improved drawing tools.

Features new to the suite's other applications include support for named ranges in the spreadsheet (this should simplify working with formulas) and the ability to manage multimedia data types (such as images, text, and QuickTime videos) in the database.

ANALOG MODEM

Transend Sixty-Seven

Transend's new Transend Sixty-Seven Modem may be the fastest analog modem, but its price tag may persuade you to stick with your 128Kbps ISDN solution.



THE TRANSEND SIXTY-SEVEN Modem is a fast analog modem, but the price may give you pause.

Expanded support for the Internet includes the addition of the Claris HomePage Lite Web-authoring tool, plus 10 HTML templates to help users create Web-ready documents.

HomePage Lite automatically translates documents created in the word processor into HTML format.

Users can also now embed Web links into their documents and more easily manage tables and GIF and JPG images on Web pages.

All in all, the new ClarisWorks Office provides the power of the bigger applications without their cost or complexity.

■ Claris Corp., Santa Clara, Calif.; (800) 544-8554; <http://www.claris.com/clarisworks>; \$79 (Windows), \$99 (Macintosh), \$49 (upgrades); Windows 95, Windows NT, and Macintosh 7.0.1 or later.

— Howard Millman,
Review Board

A nifty product, the Transend modem offers such innovative features as multilevel passwords, caller ID, and call back, as well as Transend's network-management system for centrally managing the product. The Transend Sixty-Sev-

THE WORLD'S SHORTEST SHORT STORIES. *Two of a series.*

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MANAGER WITH A NETWORK PROBLEM.
THEN HIS VENDORS KEPT POINTING
FINGERS AT EACH OTHER UNTIL
FINALLY HE WENT INSANE.

The End.

The Moral:

Call WilTel if you never want to deal with vendor finger-pointing again.

PRODUCT REVIEWS

en Modem performs well, achieving consistent speeds of 63Kbps to 65Kbps and occasionally nudging into the 67Kbps range using the InfoWorld Test Center's Lucent Definity G3 PBX.

But price-wise, the Transend modem can't compete with ISDN. I have ISDN access at home, for which I paid \$125 to have installed. I use it approximately 85 hours per week and pay on average \$50 per month. My U.S. Robotics Courier 1-modem cost \$370. My ISP charges me \$50 per month for an unlimited 128Kbps connection. So, the price for my first year of ISDN access totals \$1,695.

To calculate the price of the Transend Sixty-Seven Modem, I included the installation of two analog lines at a cost of \$72, and a phone company per-month charge with no toll and medium usage of \$80 per month. Adding \$50 per month for unlimited 67Kbps throughput and \$599 for the modem itself brings the total to \$2,231 for the first year. (These prices are

approximate and the price is double for point to point.) ISDN clearly represents the better value.

Feature-wise, the Transend Sixty-Seven Modem has a lot going for it. I easily installed the modem on my Windows 95 computer. I especially liked the easily accessible quick-reference cards built into the bottom of the unit.

The modem is a fully Group III-compliant fax machine when used with a Class 1 fax program, capable of speeds as fast as 14.4Kbps.

When working with another Transend Sixty-Seven Modem, the unit can achieve speeds of 67.2-Kbps by using two dial-up analog lines, each at a maximum of 33.6-Kbps, and a patented technology called Simple Analog Channel Sequencing, which is something like channel bonding.

Unfortunately, few ISPs have yet to install Transend Sixty-Seven Modem racks in their points of presence, so your speed will consequently be limited to that of the receiving modem.

ISDN may be less costly, but it's also less widely available. If you need an analog solution, the Transend Sixty-Seven Modem can do the job nicely.

■ *Transend Corp., Rockledge, Fla.; (800) 638-2671; <http://www.transendmodems.com>; \$599.*

— Dan Seane

COLOR LASER PRINTER

Tektronix Phaser 560

More for less seems to be the yardstick for color laser printers these days, and Tektronix measures up with its Phaser 560. The model adds polish to an already solid competitor and takes off thousands of dollars from the price.

Anyone familiar with the Phaser 550 (see Product Reviews, April 8, 1996, page 92) will know most of the features of the 560. The printer now officially sanctions the use of envelopes, labels, and cover stock in the printer, in addition to the standard letter and legal paper and transparencies. And you can check



THE TEKTRONIX PHASER 560 lets you check consumables status from the front panel, a printed report, or a Web server.

consumables status from the front panel, a printed report, or the built-in Web server.

Setup remains drop-dead simple. Text is crisp, and colors are clean with smooth gradations. Configuration can be readily deduced from the driver, the front panel, or via a configuration page on the Web server.

The extended features configuration I tested, with 40MB of RAM and an Ethernet card, supports

cludes NetWare, TCP/IP, and EtherTalk.

The Phaser 560 won't tempt art departments to give up their dye-sublimation printers, but it's fine for business reports and graphics.

■ *Tektronix Inc., Color Printing and Imaging Division, Wilsonville, Ore.; (800) 835-6100; http://www.tek.com/Color_Printers; \$6,090 as tested, \$3,995 base configuration.*

— John Spragens,
Review Board



It's the same old story. Everyone blaming everyone else for your network problem. Meanwhile, nothing gets fixed. Well, with WiTel it's simple: When you have a problem, we have a problem. In fact, we'll take responsibility for every aspect of your enterprise network, including design, installation, maintenance and monitoring. And if you need anything at all, we'll come running. End of story.

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FROM THE ETHER • BOB METCALFE

Telco integration of voice, video, and data is a mad scientist's classification

SOMEBODY PLEASE tell the telephone monopolies to stop trying to integrate voice, video, and data. Talking about voice, video, and data is a unit. It is like classifying the entire animal kingdom into its three major species: Asian elephants, African elephants, and non-elephants.

The term "voice" commonly means 4-kHz analog circuit-switched telephony carried digitally uncompressed at 64Kbps. And "voice" includes "fax" because fax looks like voice as far as telephone companies are concerned.

The term "video" commonly means NTSC broadcast analog television. It's an annoyance to telosities that all those extra TV cables had to be strung on telephone poles. Many reports have said that PCs are outselling televisions by 40 percent. And there are more homes with TVs than with phones. PCs will really catch on when they get the networks they deserve.

Telopolies now think that "data" is the Internet, and that there are two kinds. There's long-haul Internet data carried through T1 lines sold to Internet service providers for maybe 10 times what they would cost if competition were allowed. And there's Internet-access data carried through dialed analog modems as fast as 64Kbps when you've got the wind behind you.

Telephone companies think that integrating voice and data is selling channels of a T1 line, some for telephony and others for connecting Internet routers. Or integration is using your home telephone line for both voice and Internet calls. Not.

Sometimes telephone companies conduct trials of technologies that actually integrate voice, video, and data. Rarely do they succeed. One technology that did succeed is Integrated Services Digital Network (ISDN). Too bad that, after decades of trial, ISDN has stalled. It's too much IS and not enough DN. So the telos are now touting trials of ADSL — "Another Digital Service Loser."

This is not a highly refined conception of data.

Now, it may be true that the Eskimos, because so much of it surrounds them, have more than 100 words for snow. If not, it should be. And we should have 100 words for "data."

Today on the Internet, "data" mostly means terminal access, file transfer, electronic mail, newsgroups, chat, Web downloads, and push. But wait; there's more.

Consider some of the nuances of downloading. Web downloads (pull) are while-you-wait. But there are also background downloads (push). And there are streaming

downloads, such as RealAudio, which could become movies on demand, if only the Internet could sustain the quality.

Internet telephony is another general kind of data that in the future will take on many forms. Most people say they think that switched voice can be at least an order of magnitude more efficient with bandwidth than circuit-switched voice. But what passes for packet-switched Internet telephony today is of poorer quality than circuit-switched telephony.

One big opportunity is quality voice conversations. That means that those we've been stuck with for the last 100 years, ever

since barbed-wire transmissions set the standard.

Data as video will also take many forms. Television is one of video's major modes, but so far the Internet can't carry it. The Internet

was built to switch data packets from one of many sources to one of many destinations. TV has few sources and many destinations. We should soon check into how "multicast" plumbing is developing on the Internet.

Today, we struggle with jerky postage-stamp-size videos on the Internet, but someday variations will proliferate. We'll have not only video with qualities approaching in-person, but also data-enhanced telepresence that will be better than being there.

So my point is that someday there will be many modes of data, just as there are many modes of transportation today.

The meaning of "integration" also holds surprises for telopolis.

Having voice, video, and data in separate channels on the same wires is progress, but it

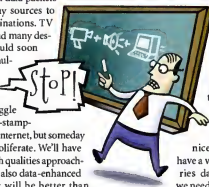
is not high-grade integration. Having various modes of communication integrated in software, at the application level, is where we are going.

This may explain why Ethernet (of course,

my favorite) is currently murdering ATM on the desktop. Sure, ATM cells allow you to integrate voice, video, and data on the wires, but its integration in the PC that counts.

Outgoing FCC Chairman Reed Hundt puts all this nicely when he says we have a voice network that carries data poorly, and what we need is a data network that carries voice (among many other things) well.

Technology pundit Bob Metcalfe invented Ethernet in 1973 and founded 3Com in 1979. Today he specializes in Internet technologies and issues. Send messages via e-mail to bob.metcalfe@infoworld.com.



NOTES FROM THE FIELD BY ROBERT X. CRINGELY

She's acting single, I'm drinking doubles: looks like love's on the rocks

PAMMY TOOK my music with her—everything except the knowing country-and-western tunes and some scratched Neil Young records, so things are a tad downbeat at my vanilla Valley condo. A man can only listen to "Cortes the Killer" so many times before turning mean and sweaty.

Since her departure my e-mail in-box is brimming with unconfirmed sightings: She's been seen emerging from a bank in Brazil with an IBM salesman, on the arm of a certain white-haired German software magnate, even up in Redmond haranguing a telephone repairman about an ISDN connection. Oh, and thanks to the reader who wrote in to wonder why she'd put up with me for so long: I guess he's got a little time on his hands, too.

Her departure has opened up a Pandora's box, and now all I can see is broken promises and failed marriages.

Sorry darling, it's over

Like marriages that end on the way to the altar, it seems the rumored deal between Gateway and Compaq very nearly happened.

Sources tell me the announcement

was prepared way back in April and that the old maid and the young buck were good to go until the Sunday night before the announcement was supposed to hit. It was Gateway, not Compaq, that ran from the church.

Time to move on

Some happy marriages end in separation. It seems NetManage may finally be waving good-bye to the applications side of its house. The company has been struggling for a while with a varied product line that includes its host-connectivity software suites as well as the excellent personal-information-manager software, Ecco Pro.

Rumor has it that NetManage will be selling off Ecco Pro shortly—to an as-yet-unnamed buyer.

It's not you, it's me

Some marriages are painful but extremely lucrative. Why did Microsoft really delay the release of Windows 98? According to my e-mail, it may have something to do with the company's difficult relationship with its partners.

Microsoft has been getting pressure from OEMs and ISVs to offer Win98 coupons for Christmas so that doting parents can make sure their rug rats enjoy a fully integrated browser-based desktop. However, the kids in Redmond have been refusing this demand. By playing Grinch and saying Windows 98 will not be ready until the second quarter of 1998, Microsoft is showing who's boss.

But I do love you

In the end, a real relationship has to be about trust. IBM is building its own Java compilers and tools as a hedge against its investment in Java tools from Sun. The high priests of Armonk don't think Sun is in the tools business for the long haul, and besides, Sun won't be optimizing Java for OS/2 anytime soon. Speaking of hedge: what happened to that little savings fund I put aside?

Uh oh. Looks like she got the mutual funds as well. If you can't send cash or checks via e-mail, at least let me know where you've seen her. Give me a call at (650) 312-0555; fax: (650) 286-2775; or send a message to cringe@infoworld.com.

DOWN TO THE WIRE • NICHOLAS PETRELEY

Voice Commands' natural language balances some of Microsoft's unnatural acts

MICROSOFT RECENTLY dumped \$45 million into Lernout & Hauspie Speech Products. I can see why. I've finally gotten my hands on a beta copy of Lernout & Hauspie's Voice Commands. And I'm impressed.

For \$59 list, this speech recognition product will let just about anyone operate Microsoft Word 95 or Word 97 without having to learn how to use Word. It performs this miracle with a limited understanding of natural language.

For example, you might format a document by saying, "Go to the beginning of the document. Select this line. Center it. Make it 10 points bigger. Make it red. Put a border around it. Move it down three lines." Want to work with tables? "Make the next three lines a table. Change the column width to one inch. Sum this column." How about outlines? "Select this line. Promote it. Move it up two lines."

Admittedly, there were times I couldn't find a phrase Voice Commands would under-

stand. At first, I couldn't figure out how to make it total a column in a table. But compared with what it would have taken to learn how to manually manipulate the table, I found it much easier to discover the expression "sum this column" in the Voice Commands help library.

There are other flaws. I found the first beta version of Voice Commands absolutely impossible to use with 16MB of RAM. Lernout & Hauspie quickly sent me an improved update that was only nearly impossible to use. Let's hope the shipping version does better on underpowered home machines.

In addition to home users, Voice Commands will be a boon for the telecommuting professional and executives. In fact, the likelihood that the product will win these target



markets might explain why Microsoft was so keen on dumping money into the technology.

You probably won't see natural language voice recognition in network computers for at least a couple of years. In the meantime, products such as Voice Commands (currently slated to ship in September) will save companies money on training, resulting in a tangible reduction in the PC's cost of ownership.

It's not often that I get to dish out praise for Microsoft, but this investment is likely to lead to as many benefits for customers as for Microsoft and its PC-loving partners. Bully for you, Microsoft.

The evil empire indeed

Unfortunately, it isn't enough. Microsoft's latest suicidal display of rage against Java makes it seem as if Microsoft wants to be the single most despised company on the planet. Billions or no billions, Microsoft shouldn't brush this growing sentiment aside. Similar animosity once crippled leaders such as Ashton-Tate and IBM.

In this latest soap opera episode, Microsoft decided to yank most of the Java applets off its Web site due to poor performance. Microsoft, here's a tip: Replace those Windows NT toys with UltraSparc servers running Sun Solaris and you won't have to worry about 120 million daily downloads of a 30KB applet.

Then there's Microsoft group product manager Cornelius Willis, who is bucking for the title Minister of Java-Derailing Propaganda. I've had the honor of leaving through a printed presentation from one of Willis' traveling Java-is-just-a-language shows. Unfortunately for Willis' cause, if you apply the logic contained within those pages to Windows and Visual Basic, you would have to conclude that neither product could ever succeed.

Of course, when it serves Microsoft's purpose, Java quickly gets promoted from "just a language" to "competing operating system." That's the argument Microsoft used when it said it would refuse to ship the Java Foundation Classes.

All right, Java is a competing operating system. It follows, therefore, that if Microsoft really wants Sun to relinquish control of Java for the benefit of the industry, Microsoft should also relinquish control of Windows—the competing operating system to Java. And as a sign of good faith that it is willing to match the efforts of Sun, Microsoft should immediately publish the Windows 95 and Windows NT 4.0 source code on its Web site.

You may laugh. But considering how hard Microsoft is working toward making enemies of its customers these days, the idea may not be as crazy as it sounds.

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BETWEEN THE LINES • MARK TEBBE

Even Microsoft can see Win98 is too little, too late: NT, CE are the future

BETWEEN DELAYS and partial releases, it is becoming clear that Windows 98 just isn't very important to Microsoft's future—or yours. Corporate buyers need to plan beyond this legacy-filler operating system and focus on Microsoft's key OS products: Windows NT and Windows CE.

Last week, Microsoft officially postponed the release of Windows 98 until mid-May. Readers of this column may recall that I predicted that Windows 98's ship date would be June or July of 1998. (See "Microsoft maps out a plan to overcome customers' resistance to OS upgrades," July 28, page 126.) This latest delay brings my guess and the product's actual ship date closer together. Without being cynical about Windows 98, I don't think this will be the last product slip, and I feel safe with my initial projection.

This isn't to say that Windows 98 will be a sales dud. Quite frankly, I am sure that Microsoft will sell millions of copies. It will be the de-

fault OS shipped on many new computers late next year. However, with Internet Explorer 4.0 already out and no clear reason to upgrade, the user demand for Win98 is waning. Even Microsoft officials believe Win98 won't meet the growing demands of corporate applications. Windows 98 will be a product for those Windows 95 users who want the latest (and hopefully more stable) version, but I doubt it will inspire Windows 3.1 users to make that 32-bit move.

Windows 98 got the strategic heave-ho when it missed this year's Christmas season—that was when it was known as Windows 97. You may recall that Windows 97 was supposed to be at OEMs this month—a new OS timed for a bounti-

ful and profitable Christmas season. The operating system would give customers reason to upgrade midway between Win95 and Windows NT—and give Microsoft revenues a boost.

When the new OS seriously missed that target, Microsoft lost an opportunity to tap into customers' wallets for upgrade revenues. Now Microsoft officials just don't want Win98 to affect upgrades to NT 5.0.

Microsoft says that it postponed Win98 to improve migration processes from Windows 3.1. I don't fully buy that. Most of the routines are in place from the Windows 95 upgrade. No, Microsoft's real burden is carrying 16-plus years of DOS and Windows compatibility up to Windows 98. Supporting this user base is both tedious and taxing to Microsoft, and the company wants—no, needs—a new start.

And that's what officials are aiming for with this week's Professional Developers' Conference. They will preach the value of distributed applications, as well as the true power of a real 32-bit environment. They will talk a lot about how this environment is made available by NT and CE—the core operating systems for the future.



True 32-bit systems and freedom from Intel give Microsoft good reason to favor Windows NT and CE.

Many of the sessions will focus on creating powerful and integrated applications that can leverage NT features as well as the COM environment. And to help developers get the CE fever, Compaq is offering attendees a hand-held device for half-price. Microsoft also is kicking in a CD of the latest CE development tools.

Let's be clear here: Windows NT and Windows CE are the foundations for Microsoft's future. Because they run on a growing number of chips besides Intel's, NT and CE also free Microsoft from its core dependency upon Intel.

As you develop your computing plans for 1998, you need to determine how and where to use NT—no Win98—on your desktops. You also should think about how to leverage your existing 16-bit investments.

Are you prepared to jump to 32-bit? How do you plan on leveraging your Windows 3.1 boxes? Send me your thoughts via e-mail.

Mark Tebbe is president of Lante Corp., a consulting and integration company in Chicago that serves clients worldwide, including several high-tech companies. Send e-mail to mtebbe@lante.com.



Looking for Cringely? Take one step back! End Around, page 135.



Today was a good day.
They killed six.

Viruses, that is. One dared to infect a Fortune 500 company's network, bringing business to a halt. But unbeknownst to the little villain, Symantec's AntiVirus Research Center (SARC) was called to eradicate it. SARC is the world's largest team of anti-virus experts. Their mission: to track, catalog and destroy new computer viruses. As one SARC group inoculates a company's PCs against Internet viruses, another repairs damaged Windows 95 files. Meanwhile back at the lab, yet another group is



identifying a new macro virus to keep Symantec's unique LiveUpdate™ current. With just a click of the button, LiveUpdate provides Norton AntiVirus™ users with the latest virus definitions. So users are assured free virus protection that's updated on a monthly basis.

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*Gartner Group Continuous Services, Research Note, 7/18/96. "Upgrade from 16MB to 64MB on Pentium® Pro 200 MHz. Testing was conducted by an independent service for Samsung Semiconductor, Inc. Kingston Technology Company, 17600 Newhope Street, Fremont Valley, CA 92708, USA, (714) 435-2800. Fax (714) 435-2899. © 1997 Kingston Technology Company. All rights reserved. Computing Without Limits is a trademark of Kingston Technology Company. All other trademarks and registered trademarks are the property of their respective owners.

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Welcome to the **InfoWorld Futures Project**. The industry-wide discussion on how leading minds see the evolution (or revolution) of the ageless question, "What's Next?" As an invitation, let us know whether or not you agree with our first interviewee, Mr. Paul Saffo, technology forecaster, essayist, and author. **Join us. Turn the page for details.**

FROM OUR FIRST DISCUSSION--MR. PAUL SAFFO--ON THE FUTURE

"Never mistake a
clear view
for a short distance.

It's the cardinal sin of all entrepreneurs. Just because something seems terribly obvious and terribly necessary doesn't mean it's going to happen quickly. Think of all the things we're still waiting for that seemed so obvious in 1980."

SAFFO ON CHANGE

"The
rate of change
is not increasing.

The adoption of specific technologies is happening as slowly as always. The acceleration effect we feel is the cross-impact of multiple technologies interacting simultaneously."

SAFFO ON ADVERTISING

"Barely three years ago people were talking about how the Internet was the death of advertising. *Actually, the Internet is a full*

employment act for advertising

It's the reinvention of advertising."

SAFFO ON PRIVACY

"Privacy will not
go away
completely.

It's just becoming less a right and more a commodity--an ever-scarcer commodity that we buy and sell at a price."

About Paul Saffo

Paul Saffo is a well-recognized specialist in long-term social and commercial impacts of new information technologies.

He is a Director at the Institute for the Future, which provides long-range planning and forecasting services to Fortune 1000 companies and government agencies.

Paul was recently named by the World Economic Forum as one of the Forum's Own Hundred 1997 Global Leaders for Tomorrow.

His interview with Paul Saffo is available

to request, go to the InfoWorld Futures Project at www.infoworld.com where you can find a full transcript of the interview with Paul Saffo. Let us hear from you. Hey, it's the future.

**INFO
WORLD
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PROJECT**

It's up for discussion.

September 29, 1997



Read Paul Saffo's take on the future and share with us what you think. You can find The InfoWorld Futures Project at www.infoworld.com

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What is the InfoWorld Futures Project?

The InfoWorld Futures Project is an industry-wide discussion about the future sponsored by *InfoWorld*, The Voice of Enterprise Computing.

Initiating the discussion will be the Futures Board, an outstanding group of leaders in the fields of technology, communications, entertainment, science, publishing, advertising and more. Every month, *InfoWorld* advertising will feature their ideas and opinions about our future. Their points of view, while perhaps not prescient, may just engage your thinking and produce a discussion you could find captivating.

We all can define the future because it is undefined. Our goal is for this discussion to take on a life of its own. And just like the future, we can't predict where it will go. You are invited to voice your opinion.

Why InfoWorld?

InfoWorld has always been about the future. For almost 20 years, we've helped our readers select the best technologies and products to make sure their companies are successful into the future. Providing the platform for this discussion is the logical outgrowth of who we are.

Who Is Participating and Where?

The InfoWorld Futures Project discussion is open to everyone. Join in. You can find the InfoWorld Futures Project at www.infoworld.com



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